1.2.2 *Number of Add on /Certificate programs offered during the last five years*

Academic Year : 2017- 2018

No. of Programmes: 17

Sl No	Department	Page No
1	Automobile Engineering	2
2	Computer Science and Engineering	77
3	Electrical and Electronics Engineering	109
4	Mechanical Engineering	239
5	Electronics and Communication Engineering	329
6	Mechatronics Engineering	388
7	MBA	538
7	Master of Computer Applications	578

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Automobile Engineering

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NCERC/3128/F/AC/09/16

13.07.2017

CIRCULAR

It is informed that all the departments are directed to conduct the certificate courses and value added courses for the academic year 2017-18. The schedule for the above courses with details should be submitted to the office on or before 4th August 2017.

Principal

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PAMPADY, THIRUVILWAMALA – 680 588

(ACCREDITED BY NAAC)

DEPARTMENT OF AUTOMOBILE ENGINEERING

Minutes of Meeting of Department Advisory Committee – 2017-18 – Odd Semester

Date & Time:

Meeting Facilitator: Head of the Department

In Attendance:

S. No	Name	Signature
1	Senthil Kumar, Assistant Professor	
2	Vimal M N, Associate Professor	
3	Manuraj KR, Assistant Professor	
4	Seena PS,Assistant Professor	
5	Jinoy Mathew, Assistant Professor	
6	Ajith G, Assistant Professor	
7	Deepak KP, Assistant Professor	
8	Shaik Usman Sha, Assistant Professor	
9	Rejumon R, Assistant Professor	
10	Parvathy K, Assistant Professor	
11	SithuDas VS, Assistant Professor	
12	Prasanth A, Assistant Professor	Prasanth
13	Sanal Kumar, Assistant Professor	Sanal Kumar

Absent: None

Meeting Agenda:

1. To discuss the certificate courses for the 2017-2018 academic year.
2. To identify the topics of the certificate courses for offering to students.
3. To select an interested faculty and allot the course.

Minutes of Meeting:

1. The meeting starts with a silent prayer.
2. HOD welcomed the entire teaching faculty for the meeting.
3. HOD asked for the willingness of the faculty to conduct the certificate course
4. Mr Jinoy Mathew has shown his willingness to take a certificate course on "Autonomous Vehicles and Machines "in the academic year.

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5. HOD asked Mr Jinoy Mathew to prepare the syllabus for the topic and submit for approval.
6. HOD asked the department coordinator to make notice and publish it on the department notice board.
7. The meeting was concluded by 4 pm.

Prepared by

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PAMPADY, THIRUVILWAMALA - 680 588

DEPARTMENT OF AUTOMOBILE ENGINEERING

CERTIFICATE COURSE – 2017-2018 – ODD SEMESTER

AUTONOMOUS VEHICLES AND MACHINES

SYLLABUS

CLASS	PARTICULARS
1	Introduction to Automated, Connected, and Intelligent Vehicles
2	Introduction to the Concept of Automotive Electronics
3	Automotive Electronics Overview
4	History & Evolution
5	Infotainment, Body, Chassis, and Powertrain Electronics
6	Advanced Driver Assistance Electronic Systems
7	Connected and Autonomous Vehicle Technology
8	Basic Control System Theory applied to Automobiles
9	Overview of the Operation of ECUs
10	Basic Cyber-Physical System Theory and Autonomous Vehicles
11	Role of Surroundings Sensing Systems and Autonomy
12	Role of Wireless Data Networks and Autonomy
13	Sensor Technology for Advanced Driver Assistance Systems
14	Basics of Radar Technology and Systems
15	Ultrasonic Sonar Systems
16	Lidar Sensor Technology and Systems
17	Camera Technology
18	Night Vision Technology
19	Other Sensors
20	Use of Sensor Data Fusion
21	Integration of Sensor Data to On-Board Control Systems
22	Overview of Wireless Technology
23	Wireless System Block Diagram and Overview of Components
24	Transmission Systems – Modulation/Encoding
25	Receiver System Concepts – Demodulation/Decoding
26	Signal Propagation Physics
27	Basic Transmission Line and Antenna Theory
28	Wireless Networking and Applications to Vehicle Autonomy
29	Connected Car Technology
30	Advanced Driver Assistance System Technology

Program Coordinator

Head of the Department

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DEPARTMENT OF AUTOMOBILE ENGINEERING

NOTICE

As per the advice from the DAC meeting, it was decided to conduct the certificate course on "Autonomous Vehicles and Machines" which will be conducted by having 30 hours of contact classes from 4 pm to 5 pm in the odd semester of 2017-2018 academic year. Those who are interested to participate, enroll your name to your class advisor.

Head of the Department

To:
I, III, V, VII Semester Classroom - AUE
Principal
Academic Office
Notice Board - AUE

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DEPARTMENT OF AUTOMOBILE ENGINEERING

ENROLLEMENT LIST OF CERTIFICATE COURSE - 2017-18 - ODD SEMESTER

Course Name : Autonomous Vehicles and Machines

Sl No	Register Number	Student Name	Semester	Year
1	NCAOEAU001	Abdul Kasim V.k	VII	IV
2	NCAOEAU002	Abhijith K.p	VII	IV
3	NCAOEAU003	Abhijith V.u	VII	IV
4	NCAOEAU004	Abhilash Rajeev	VII	IV
5	NCAOEAU005	Ajay C	VII	IV
6	NCAOEAU007	Akhil S	VII	IV
7	NCAOEAU008	Akshay R	VII	IV
8	NCAOEAU009	Anas N K	VII	IV
9	NCAOEAU010	Arjun M.m	VII	IV
10	NCAOEAU011	ARJUN P	VII	IV
11	NCAOEAU012	Ashwin Krishnakumar	VII	IV
12	NCAOEAU013	Aslam Kh	VII	IV
13	NCAOEAU014	Aswath A	VII	IV
14	NCAOEAU015	Basil Abraham	VII	IV
15	NCAOEAU016	Gokul Udai	VII	IV
16	NCAOEAU017	Gokul Vm	VII	IV
17	NCAOEAU018	Harikrishnan	VII	IV
18	NCAOEAU019	Harikrishnan Udhayan	VII	IV
19	NCAOEAU020	JASIL USMAN V.T.K	VII	IV
20	NCAOEAU021	Jayakrishnan P	VII	IV
21	NCAOEAU022	Jeremy Shaji	VII	IV
22	NCAOEAU023	Jinu Jose	VII	IV
23	NCAOEAU024	Lovin Jolly	VII	IV
24	NCAOEAU025	Midhun Khosh Ms	VII	IV
25	NCAOEAU026	Muhammed Salim K	VII	IV

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26	NCAOEAU027	Mundakkal Anmol Ashokan	VII	IV
27	NCAOEAU028	Prajeesh P	VII	IV
28	NCAOEAU029	Rijo P Jose	VII	IV
29	NCAOEAU030	Rohan P.s	VII	IV
30	NCAOEAU031	Royance T Simon	VII	IV
31	NCAOEAU032	Safwan Mohammed	VII	IV
32	NCAOEAU033	Salgin A.s	VII	IV
33	NCAOEAU034	Saurabh S	VII	IV
34	NCAOEAU035	Shafnas K	VII	IV
35	NCAOEAU036	Shanoob M	VII	IV
36	NCAOEAU038	Sreehari K	VII	IV
37	NCAOEAU039	Suresh C U	VII	IV
38	NCAOEAU040	Swaroop Das	VII	IV
39	NCAOEAU041	Tomjo Chittilappilly	VII	IV
40	NCAOEAU042	Vishnu Pradeep Kumar	VII	IV
41	NCAOEAU043	Vineeth R	VII	IV
42	NCAOEAU044	Vipin George	VII	IV
43	NCAOEAU045	Jithin N V	VII	IV
44	NCAOEAU046	Midhun Mathew Prasad	VII	IV
45	NCAOEAU047	Prabin C B	VII	IV
46	NCAOEAU048	Varun C.v	VII	IV
47	NCAOEAU049	Ajith Bhaskar	VII	IV
48	NCAOEAU051	Hasin Ali T	VII	IV
49	NCAOEAU052	Sharon. E B	VII	IV
50	NCAOEAU053	Ragil Raju	VII	IV

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DEPARTMENT OF AUTOMOBILE ENGINEERING

ATTENDANCE REGISTER OF CERTIFICATE COURSE - 2017-18 - ODD SEMESTER

Course Name : Autonomous Vehicles and Machines

Sl No	Register Number	Student Name	Hours																												
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
1	NCAOEAU001	Abdul Kasim V.k	/	/	/	/	a	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/
2	NCAOEAU002	Abhijith K.p	/	/	/	/	a	/	/	/	/	/	/	/	a	/	/	/	/	/	/	a	/	/	/	/	/	/	/	/	/	/
3	NCAOEAU003	Abhijith V.u	/	a	/	/	/	a	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	a	/	/	/	/	/	/	/
4	NCAOEAU004	Abhilash Rajeev	/	/	a	/	/	a	/	/	/	/	/	/	/	a	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/
5	NCAOEAU005	Ajay C	/	/	/	/	/	/	a	/	/	/	/	/	/	/	/	/	/	a	/	/	/	/	/	/	/	/	/	/	/	/
6	NCAOEAU007	Akhil S	/	/	/	/	/	/	/	/	/	a	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/
7	NCAOEAU008	Akshay R	/	/	/	/	/	/	/	/	/	/	/	/	a	/	/	/	/	/	/	/	/	/	/	a	/	/	/	/	/	/
8	NCAOEAU009	Anas N K	/	/	/	/	a	/	/	/	/	/	/	/	/	/	/	/	/	/	a	/	/	/	/	/	/	/	/	/	/	/
9	NCAOEAU010	Arjun M.m	/	/	a	/	/	/	/	/	a	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	a	/	/	/	/	/
10	NCAOEAU011	ARJUN P	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	a	/	/	/	/	/	/	/	/	/	a	/	/	/	/
11	NCAOEAU012	Ashwin Krishnakumar	/	/	a	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/
12	NCAOEAU013	Aslam Kh	/	/	/	/	/	/	/	/	/	/	/	a	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/
13	NCAOEAU014	Aswath A	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	a	a	/	/	/	/	/	/	/	/	/
14	NCAOEAU015	Basil Abraham	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	a	a	/	/
15	NCAOEAU016	Gokul Udai	a	/	/	/	/	/	/	a	/	/	/	/	/	/	/	/	a	/	/	/	/	/	a	/	/	/	/	/	/	/
16	NCAOEAU017	Gokul Vm	/	a	a	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/
17	NCAOEAU018	Harikrishnan	/	/	/	/	a	/	/	/	/	a	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/
18	NCAOEAU019	Harikrishnan Udhayan	/	/	/	/	/	/	a	a	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/
19	NCAOEAU020	JASIL USMAN V.T.K	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	a	/	a	/	/	/	/	/	/	/	/	/	/	/
20	NCAOEAU021	Jayakrishnan P	/	/	a	/	/	/	/	/	/	/	a	/	/	/	/	/	/	/	/	/	/	/	a	/	/	/	/	/	/	/
21	NCAOEAU022	Jeremy Shaji	/	/	/	/	a	/	/	/	/	/	/	/	/	a	/	/	/	/	/	/	/	a	/	/	/	/	/	/	/	/
22	NCAOEAU023	Jinu Jose	/	/	/	/	/	/	a	a	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/
23	NCAOEAU024	Lovin Jolly	/	/	/	/	/	/	/	/	/	/	/	/	/	a	/	a	/	/	/	/	/	/	/	/	/	/	/	/	/	/
24	NCAOEAU025	Midhun Khosh Ms	/	/	/	a	/	a	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	a	/	/	/	/	/	/
25	NCAOEAU026	Muhammed Salim K	/	/	/	/	/	/	/	/	/	a	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	a	a	/	/
26	NCAOEAU027	Mundakkal Anmol Ashokan	/	/	a	/	/	/	/	/	/	/	/	/	/	/	/	/	a	/	/	/	/	/	/	/	/	/	/	/	/	/

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27	NCAOEAU028	Prajeesh P	/	/	a	/	/	/	a	/	/	/	/	/	a	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/
28	NCAOEAU029	Rijo P Jose	/	/	/	/	/	/	/	/	a	/	/	/	/	/	/	/	/	/	/	/	a	/	/	/	/	/	/	/	/	/
29	NCAOEAU030	Rohan P.s	/	/	/	/	/	/	/	/	/	/	/	/	/	/	a	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/
30	NCAOEAU031	Royance T Simon	/	a	/	/	/	/	/	/	/	/	/	/	/	/	a	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/
31	NCAOEAU032	Safwan Mohammed	/	/	/	/	/	a	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/
32	NCAOEAU033	Salgin A.s	/	/	/	/	/	/	/	/	/	/	a	/	/	/	/	/	a	/	/	/	/	a	/	/	/	/	/	/	/	/
33	NCAOEAU034	Saurabh S	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/
34	NCAOEAU035	Shafnas K	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/
35	NCAOEAU036	Shanoob M	/	/	/	a	/	/	/	/	/	/	a	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/
36	NCAOEAU038	Sreehari K	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/
37	NCAOEAU039	Suresh C U	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/
38	NCAOEAU040	Swaroop Das	/	/	/	/	/	/	/	/	/	/	a	/	/	/	/	/	/	/	/	/	a	/	/	/	/	/	/	/	/	/
39	NCAOEAU041	Tomjo Chittilappilly	a	/	/	/	/	/	a	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	a	/	/	/	/	/
40	NCAOEAU042	Vishnu Pradeep Kumar	/	/	/	/	/	/	/	a	/	/	/	/	/	a	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/
41	NCAOEAU043	Vineeth R	/	/	/	/	a	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	a	/	/	/	a	/	/	/	/
42	NCAOEAU044	Vipin George	a	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	a	a	/	/	/	/	/	/	/	/	/	/	/	/
43	NCAOEAU045	Jithin N V	/	/	/	a	a	/	/	/	/	/	a	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/
44	NCAOEAU046	Midhun Mathew Prasad	/	/	/	/	/	/	a	a	/	/	/	/	/	/	/	/	/	/	/	a	/	/	/	/	/	/	/	/	/	/
45	NCAOEAU047	Prabin C B	/	/	a	/	/	/	/	/	/	/	a	/	/	/	a	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/
46	NCAOEAU048	Varun C.v	/	a	/	/	/	a	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	a	/	/	/	/	/	/	/	/
47	NCAOEAU049	Ajith Bhaskar	/	/	/	/	/	/	/	a	a	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/
48	NCAOEAU051	Hasin Ali T	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	a	a	/	/	/	/	/	a	/	/	/	/	/	/
49	NCAOEAU052	Sharon. E B	/	/	/	/	/	/	/	a	/	/	/	/	/	/	a	/	/	/	/	/	/	/	/	/	a	/	/	/	/	/
50	NCAOEAU053	Ragil Raju	/	/	a	/	/	/	/	/	/	/	/	/	a	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/

Faculty

Head of the Department

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AUTONOMOUS VEHICLES AND MACHINES

ANSWER KEY

Answer all the Questions *Max Marks: 50 Marks*

1. How many levels set for autonomous vehicle technology including L0?
   a) 4
   b) 5
   c) 6
   d) 7
2. What kinds of sensors are used to help AV to detect the surroundings?
   a) RADAR
   b) Sonar
   c) LADAR
   d) Camera
   e) Light
3. What is main difference between the Level 3 and Level 2 in AV technology?
   a) The vehicle can increase and decrease the speed
   b) In L3 The vehicle give warning and enough time to the driver to take control once required
   c) The vehicle can steer by it self
4. What are the two associations which categorize the AV system levels of the AV?
   a) (Society of Automotive Engineers) SAE
   b) (Fedral Automobil Association) FAA
   c) New Car Assessment Program NCAP
   d) (National Highway Traffic Safety Administration) NHTSA

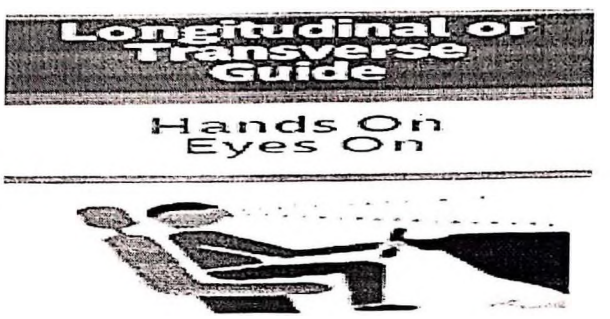
5. **Which of the below AV levels links to the photo?**

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Longitudinal or Transverse Guide



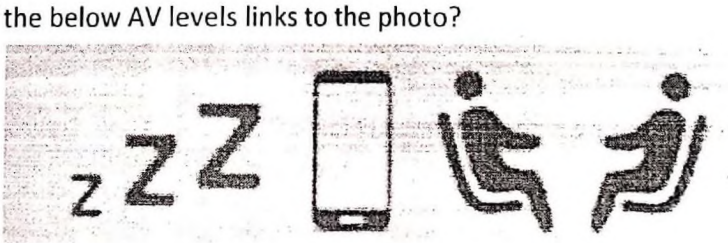
a) **L1**
b) L2
c) L3
d) L4
e) L5

6. Which of the below AV levels links to the photo?



a) L1
b) L2
c) L3
d) L4
e) L5

7. Which of the below AV levels links to the photo?



a) L1
b) L2

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c) L3
d) L4
e) L5

8. Which of the below AV levels links to the photo?



a) L1
b) L2
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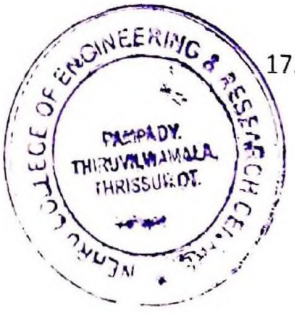
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DEPARTMENT OF AUTOMOBILE ENGINEERING

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Student Name: Vipin George

Register Number: NCAOEAU044

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DEPARTMENT OF AUTOMOBILE ENGINEERING

CERTIFICATE COURSE – 2017-2018 – ODD SEMESTER – EXAM

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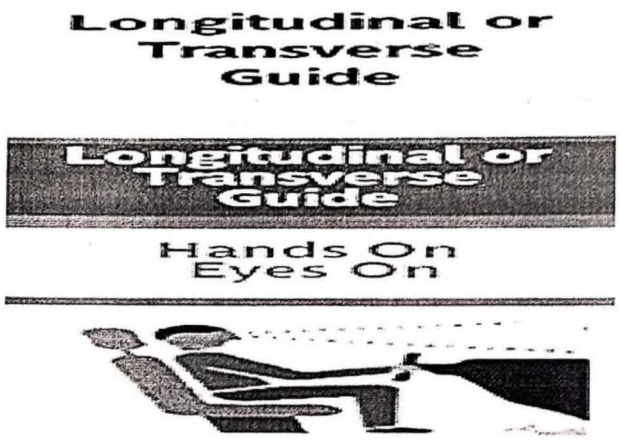
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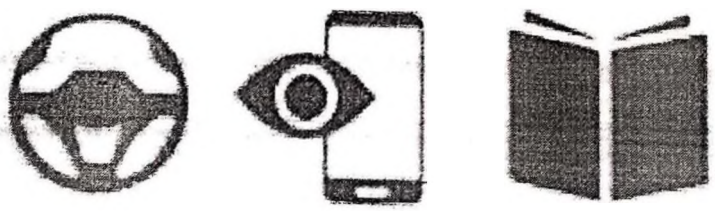
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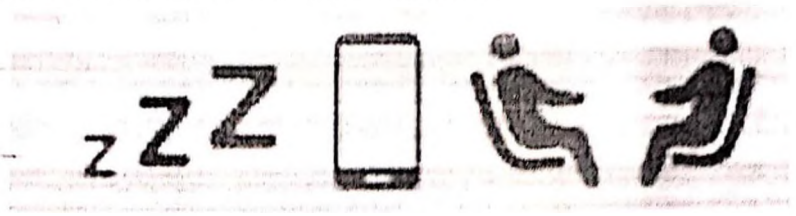
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Student Name: AJAY. C

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DEPARTMENT OF AUTOMOBILE ENGINEERING

CERTIFICATE COURSE – 2017-2018 – ODD SEMESTER – EXAM

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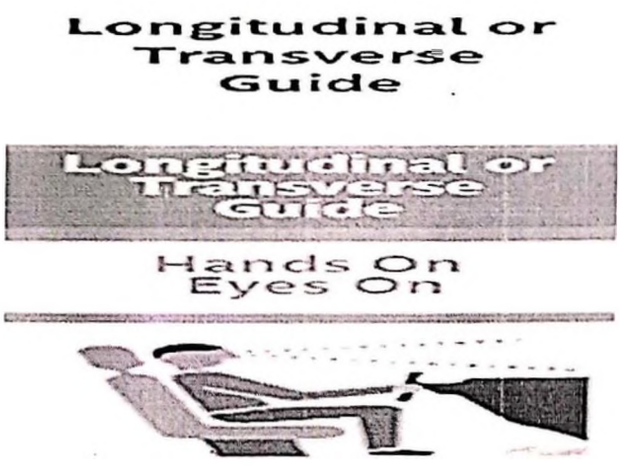
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Student Name:

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Student Name: Shanoob.M

Register Number: NCAOEAU036

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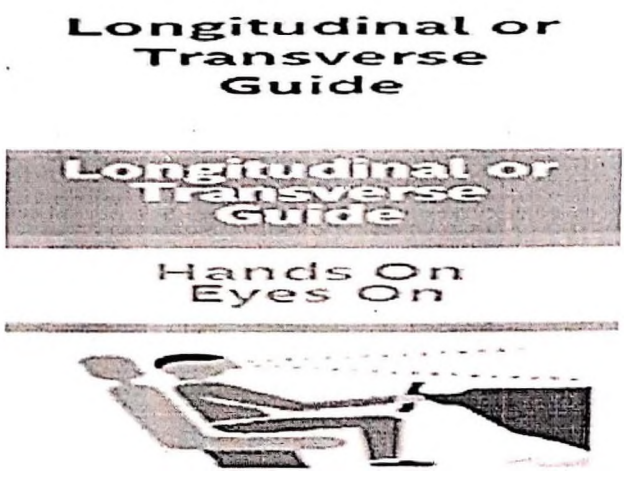
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Register Number:

b) a device that makes work easier
c) a device that makes more work for a job
d) device that is made up of two or more machine

24. What is the equation for calculating work?
a) force times distance
b) force divided by distance
c) force plus distance
d) mass times acceleration

25. A flat sloping surface that connects lower and higher elevations. It makes raising objects easier.
a) wedge
b) screw
c) lever
d) inclined plane

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DEPARTMENT OF AUTOMOBILE ENGINEERING

MARK LIST OF CERTIFICATE COURSE - 2017-18 - ODD SEMESTER

Course Name : Autonomous Vehicles and Machines

Sl No	Register Number	Student Name	Semester	Year	Marks
1	NCAOEAU001	Abdul Kasim V.k	VII	IV	32
2	NCAOEAU002	Abhijith K.p	VII	IV	34
3	NCAOEAU003	Abhijith V.u	VII	IV	34
4	NCAOEAU004	Abhilash Rajeev	VII	IV	36
5	NCAOEAU005	Ajay C	VII	IV	38
6	NCAOEAU007	Akhil S	VII	IV	32
7	NCAOEAU008	Akshay R	VII	IV	36
8	NCAOEAU009	Anas N K	VII	IV	34
9	NCAOEAU010	Arjun M.m	VII	IV	32
10	NCAOEAU011	ARJUN P	VII	IV	36
11	NCAOEAU012	Ashwin Krishnakumar	VII	IV	38
12	NCAOEAU013	Aslam Kh	VII	IV	34
13	NCAOEAU014	Aswath A	VII	IV	36
14	NCAOEAU015	Basil Abraham	VII	IV	34
15	NCAOEAU016	Gokul Udai	VII	IV	32
16	NCAOEAU017	Gokul Vm	VII	IV	30
17	NCAOEAU018	Harikrishnan	VII	IV	32
18	NCAOEAU019	Harikrishnan Udhayan	VII	IV	36
19	NCAOEAU020	JASIL USMAN V.T.K	VII	IV	34
20	NCAOEAU021	Jayakrishnan P	VII	IV	32
21	NCAOEAU022	Jeremy Shaji	VII	IV	36
22	NCAOEAU023	Jinu Jose	VII	IV	38
23	NCAOEAU024	Lovin Jolly	VII	IV	34
24	NCAOEAU025	Midhun Khosh Ms	VII	IV	36
25	NCAOEAU026	Muhammed Salim K	VII	IV	34
26	NCAOEAU027	Mundakkal Anmol Ashokan	VII	IV	32
27	NCAOEAU028	Prajeesh P	VII	IV	30
28	NCAOEAU029	Rijo P Jose	VII	IV	32
29	NCAOEAU030	Rohan P.s	VII	IV	34
30	NCAOEAU031	Royance T Simon	VII	IV	36
31	NCAOEAU032	Safwan Mohammed	VII	IV	36
32	NCAOEAU033	Salgin A.s	VII	IV	38
33	NCAOEAU034	Saurabh S	VII	IV	32
34	NCAOEAU035	Shafnas K	VII	IV	34
35	NCAOEAU036	Shanoob	VII	IV	48
36	NCAOEAU038	Sreehari K	VII	IV	34
37	NCAOEAU039	Suresh C U	VII	IV	36
38	NCAOEAU040	Swaroop Das	VII	IV	32

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39	NCAOEAU041	Tomjo Chittilappilly	VII	IV	38
40	NCAOEAU042	Vishnu Pradeep Kumar	VII	IV	36
41	NCAOEAU043	Vineeth R	VII	IV	34
42	NCAOEAU044	Vipin George	VII	IV	40
43	NCAOEAU045	Jithin N V	VII	IV	32
44	NCAOEAU046	Midhun Mathew Prasad	VII	IV	36
45	NCAOEAU047	Prabin C B	VII	IV	34
46	NCAOEAU048	Varun C.v	VII	IV	34
47	NCAOEAU049	Ajith Bhaskar	VII	IV	36
48	NCAOEAU051	Hasin Ali T	VII	IV	38
49	NCAOEAU052	Sharon. E B	VII	IV	42
50	NCAOEAU053	Ragil Raju	VII	IV	36

Head of the Department

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Date 31 / 7 / 2017

From

Jinoy Mathew,
Course Coordinator,
Department of Automobile Engineering,
Nehru College of Engineering and Research Centre
Pampady, Thiruvilwamala - 680 588.

To

The Principal,
Nehru College of Engineering and Research Centre
Pampady, Thiruvilwamala - 680 588.

Through: HOD, Department of Automobile Engineering

Respected Madam,

SUB: Request for conducting Certificate Course for the odd semester of 2017 - 2018 Academic Year - reg

As per the circular number NCERC/3128/F/AC/14/17 on 04.07.2017, I may request you to conduct the certificate course for the odd semester of the 2017-2018 academic year. The syllabus and lecture plan is attached herewith for your perusal.

Details of Course certificate:

Academic Year	Semester	Topic	Time	No of Hours
2017 - 2018	ODD	Autonomous Vehicles and Machines	4 pm - 5 pm	30

Kindly do the needful. Thank you.

Forwarded To Principal
31-7-17

Yours faithfully,

Jinoy Mathew
Assistant Professor – AUE

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About us

Nehru College of Engineering and Research Centre(NCERC), situated on the Bank of the river Nila, is a premier Engineering college that has pioneered engineering education, research and training in the private sector. Established in 2002 by the founder chairman Shri P.K. Das, NCERC is committed to impart world class quality education in engineering and research. Dedicated to the service in the realm of technical education in Kerala, it is an ISO 9001:2015 certified institution, approved by All India Council for Technical Education (AICTE), affiliated to A P J Abdul Kalam Technological University(KTU) and is accredited by National Assessment and Accreditation Council (NAAC).

www.ncerc.ac.in

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NEHRU COLLEGE OF ENGINEERING AND RESEARCH CENTRE, PAMPADY THRISSUR

PRESENTS

A COURSE ON

Autonomous Vehicles and Machines

DURING 2017-2018 ODD SEMESTER

Cordinator

Mr. Jinoy Mathew

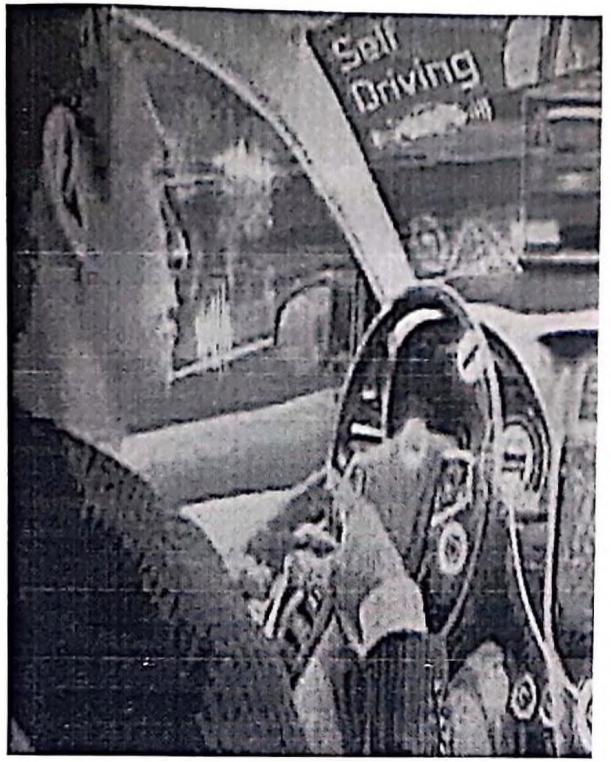
DEPARTMENT OF AUTOMOBILE ENGINEERING



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About the course

Be... Self Driving Car



Course Details

COURSE COORDINATOR



Email: p...@nec...in

Phone: 04...

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ACERC

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COURSE COMPLETION CERTIFICATE

Is presented to

Vineeth R

For successfully completing the course on "Autonomous Vehicles and Machines" organised by Department of Automobile Engineering, Nehru College of Engineering and Research Centre, Thrissur during odd semesters of 2017-2018 academic year.

Program Coordinator

HoD

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NCERC

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THRISSUR - 680 588

COURSE COMPLETION CERTIFICATE

Is presented to

Akshay R

For successfully completing the course on "Autonomous Vehicles and Machines" organised by Department of Automobile Engineering, Nehru College of Engineering and Research Centre, Thrissur during odd semesters of 2017-2018 academic year.

Program Coordinator

HoD

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COURSE COMPLETION CERTIFICATE

Is presented to

Prajeesh P

For successfully completing the course on "Autonomous Vehicles and Machines" organised by Department of Automobile Engineering, Nehru College of Engineering and Research Centre, Thrissur during odd semesters of 2017-2018 academic year.

Program Coordinator

HoD

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(ACCREDITED BY NAAC)

DEPARTMENT OF AUTOMOBILE ENGINEERING

Minutes of Meeting of Department Advisory Committee – 2017-18 – Even Semester

Date & Time:

Meeting Facilitator: Head of the Department

In Attendance:

S. No	Name	Signature
1	Vimal M N, Associate Professor	
2	Manuraj KR, Assistant Professor	
3	Jinoy Mathew, Assistant Professor	
4	Ajith G, Assistant Professor	
5	Rejumon R, Assistant Professor	
6	Parvathy K, Assistant Professor	
7	SithuDas VS, Assistant Professor	
8	Prasanth A, Assistant Professor	Prasanth
9	Sanal Kumar, Assistant Professor	Sanal Kumar

Absent: None

Meeting Agenda:

1. To discuss the certificate courses for the 2017-2018 academic year.
2. To identify the topics of the certificate courses for offering to students.
3. To select an interested faculty and allot the course.

Minutes of Meeting:

1. The meeting starts with a silent prayer.
2. HOD welcomed the entire teaching faculty for the meeting.
3. HOD asked for the willingness of the faculty to conduct the certificate course
4. Mr Ajith G has shown his willingness to take a certificate course on "Hybrid and Electrical Vehicle Technologies"in the academic year.
5. HOD asked Mr Ajith G to prepare the syllabus for the topic and submit for approval.
6. HOD asked the department coordinator to make notice and publish it on the department notice board.

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7. The meeting was concluded by 4 pm.

Prepared by

(VIMAL M N)

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DEPARTMENT OF AUTOMOBILE ENGINEERING

CERTIFICATE COURSE – 2017-2018 – EVEN SEMESTER

HYBRID AND ELECTRICAL VEHICLE TECHNOLOGIES

SYLLABUS

CLASS	PARTICULARS
1	Review of Conventional Vehicle: Introduction to Hybrid Electric Vehicles
2	Types of EVs
3	Hybrid Electric Drive-train
4	Tractive effort in normal driving
5	Energy consumption Concept of Hybrid Electric Drive Trains
6	Architecture of Hybrid Electric Drive Trains
7	Series Hybrid Electric Drive Trains
8	Parallel hybrid electric drive trains
9	Electric Propulsion unit
10	Configuration and control of DC Motor drives
11	Induction Motor drives
12	Permanent Magnet Motor drives
13	Switched reluctance motor
14	Introduction to Energy Storage Requirements in Hybrid and Electric Vehicles
15	Battery based energy storage and its analysis
16	Fuel Cell based energy storage and its analysis
17	Hybridization of different energy storage devices
18	Sizing the drive system
19	Design of Hybrid Electric Vehicle and Plug-in Electric Vehicle
20	Energy Management Strategies
21	Automotive networking and communication
22	EV and EV charging standards
23	Business: E-mobility business
24	Electrification challenges
25	Connected Mobility and Autonomous Mobility- case study
26	E-mobility Indian Roadmap Perspective
27	Policy: EVs in infrastructure system
28	Integration of EVs in smart grid
29	Social dimensions of EVs
30	Simulations and case studies in above mentioned areas

Program Coordinator

Head of the Department

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DEPARTMENT OF AUTOMOBILE ENGINEERING

NOTICE

As per the advice from the DAC meeting, it was decided to conduct the certificate course on "Hybrid and Electric Vehicle Technologies" which will be conducted by having 30 hours of contact classes from 4 pm to 5 pm in the even semester of 2017-2018 academic year. Those who are interested to participate, enroll your name to your class advisor.

Head of the Department

To:
I, III, V, VII Semester Classroom - AUE
Principal
Academic Office
Notice Board - AUE

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DEPARTMENT OF AUTOMOBILE ENGINEERING

ENROLLEMENT LIST OF CERTIFICATE COURSE - 2017-18 - EVEN SEMESTER

Course Name : Hybrid and Electrical Vehicle Technologies

Sl No	Register Number	Student Name	Semester	Year
1	NCE15AU001	Adhinrag K I	VI	III
2	NCE15AU002	Akhilraj A	VI	III
3	NCE15AU003	Akshay K K	VI	III
4	NCE15AU004	Akshay Mohan	VI	III
5	NCE15AU005	Alister Reeve Xavier	VI	III
6	NCE15AU007	Anil V	VI	III
7	NCE15AU008	Antony Simon Glen Rozario	VI	III
8	NCE15AU009	V M Aravind	VI	III
9	NCE15AU011	Athul. R. Nair	VI	III
10	NCE15AU012	Deepak K J	VI	III
11	NCE15AU016	Jubin Scaria	VI	III
12	NCE15AU017	Leon Varghese A	VI	III
13	NCE15AU018	Mohamed Fairooz P	VI	III
14	NCE15AU020	Navaneeth Rackandi Sathiavel	VI	III
15	NCE15AU023	Pranav.p.m	VI	III
16	NCE15AU024	Rahul K	VI	III
17	NCE15AU025	Sagar P S	VI	III
18	NCE15AU026	Sharan Dev.k	VI	III
19	NCE15AU027	Shyamjith A	VI	III
20	NCE15AU028	Sreejesh K S	VI	III
21	NCE15AU030	Sreejith S	VI	III
22	NCE15AU031	Suresh Kumar V P	VI	III
23	NCE15AU033	Vaisakh Raj	VI	III
24	LNCE15AU035	Arjun K.v	VI	III
25	LNCE15AU036	Praveen K J	VI	III

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26	NCE16AU002	Adithya Sekhar	IV	II
27	NCE16AU003	Akhil Pradeep	IV	II
28	NCE16AU004	Akhil Shaji	IV	II
29	NCE16AU005	Akshay Bhasker Chakkalakkal	IV	II
30	NCE16AU008	Arun Anand A	IV	II
31	NCE16AU010	Gopikrishnan S	IV	II
32	NCE16AU011	Gourisankar T G	IV	II
33	NCE16AU013	Joseph Chandy	IV	II
34	NCE16AU014	Levin Lorance	IV	II
35	NCE16AU015	Linso Solomon	IV	II
36	NCE16AU017	Muhammed Hafis K	IV	II
37	NCE16AU018	Muhammed Sharube K S	IV	II
38	NCE16AU019	Nithin K Das	IV	II
39	NCE16AU024	Sanjay C	IV	II
40	NCE16AU027	Sreejith P S	IV	II
41	NCE16AU030	Vimal D	IV	II
42	NCE16AU031	Vineeth M	IV	II
43	NCE15AU014	JAYAKRISHNAN A	IV	II
44	NCE17001	Abhijith Krishnan K	II	I
45	NCE17002	Akshay K S	II	I
46	NCE17003	Arjun S	II	I
47	NCE17004	Brijith S	II	I
48	NCE17005	Sanjay P V	II	I
49	NCE17006	Swopnil Saiprasad	II	I
50	NCAOEAU044	Vipin George	IV	IV

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DEPARTMENT OF AUTOMOBILE ENGINEERING

ATTENDANCE REGISTER OF CERTIFICATE COURSE - 2017-18 - EVEN SEMESTER

Course Name : Hybrid and Electrical Vehicle Technologies

Sl No	Register Number	Student Name	Hours																												
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
1	NCE15AU001	Adhinrag K I	/	/	/	/	/	/	a	/	/	/	/	/	/	/	/	a	/	/	/	/	/	/	/	/	a	/	/	/	/	/
2	NCE15AU002	Akhilraj A	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/
3	NCE15AU003	Akshay K K	/	/	/	a	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	a	/	/	/	/	/	/	/	/	/
4	NCE15AU004	Akshay Mohan	/	/	/	/	/	/	/	a	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	a	/	/	/	/
5	NCE15AU005	Alister Reeve Xavier	/	a	/	/	/	a	/	/	/	/	/	a	/	/	/	/	/	/	/	/	/	/	a	/	/	/	/	/	/	/
6	NCE15AU007	Anil V	/	/	a	/	/	/	/	/	/	/	/	/	/	/	/	/	a	/	/	/	/	/	/	/	/	/	/	/	/	/
7	NCE15AU008	Antony Simon Glen Rozario	/	a	/	/	/	/	/	/	/	/	/	a	/	/	/	/	/	/	/	/	/	/	a	/	/	/	/	/	/	/
8	NCE15AU009	V M Aravind	/	/	/	a	/	/	/	/	/	/	/	/	/	/	/	/	a	/	/	/	/	/	/	/	/	a	/	/	/	/
9	NCE15AU011	Athul. R. Nair	a	/	/	/	/	/	/	/	a	/	/	/	/	/	/	/	/	/	/	/	a	/	/	/	/	/	/	/	/	/
10	NCE15AU012	Deepak K J	/	/	a	/	/	/	/	/	/	/	a	/	/	/	/	/	a	/	/	/	/	/	/	/	/	/	/	a	/	/
11	NCE15AU016	Jubin Scaria	/	/	/	a	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/
12	NCE15AU017	Leon Varghese A	/	/	/	/	/	/	/	/	a	/	/	/	/	/	/	/	/	a	/	/	/	/	/	/	/	/	/	/	/	/
13	NCE15AU018	Mohamed Fairooz P	/	/	/	/	a	/	/	/	/	/	/	a	/	/	/	/	/	/	/	/	a	/	/	/	/	/	/	/	/	/
14	NCE15AU020	Navaneeth Rackandi Sathiavel	/	a	/	/	/	/	/	/	a	/	/	/	/	/	/	/	/	/	/	/	a	/	/	/	/	/	/	/	/	/
15	NCE15AU023	Pranav.p.m	/	/	a	/	/	/	/	/	/	a	/	/	/	a	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/
16	NCE15AU024	Rahul K	a	/	/	/	/	/	a	/	/	/	/	/	/	/	a	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/
17	NCE15AU025	Sagar P S	/	/	/	/	/	/	/	/	/	/	a	/	/	/	/	/	/	/	/	/	/	/	/	a	a	/	/	/	/	/
18	NCE15AU026	Sharan Dev.k	/	/	a	/	/	/	/	/	a	/	/	/	/	a	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/
19	NCE15AU027	Shyamjith A	/	/	/	a	/	/	/	/	/	/	/	/	/	a	/	/	/	/	/	a	/	/	/	/	/	/	a	/	/	/
20	NCE15AU028	Sreejesh K S	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/
21	NCE15AU030	Sreejith S	/	a	/	/	/	a	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/
22	NCE15AU031	Suresh Kumar V P	/	/	/	/	/	/	/	a	a	/	/	/	/	/	/	/	/	/	/	/	/	/	a	a	/	/	/	/	/	/
23	NCE15AU033	Vaisakh Raj	/	/	a	/	/	a	/	/	/	/	/	/	/	a	a	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/
24	LNCE15AU035	Arjun K.v	/	/	/	/	a	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	a	a	a	/
25	LNCE15AU036	Praveen K J	/	/	/	/	/	a	/	/	/	a	a	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/
26	NCE16AU002	Adithya Sekhar	/	a	a	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	a	a	/	/	/	/	/	/	/
27	NCE16AU003	Akhil Pradeep	a	a	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	a	/
28	NCE16AU004	Akhil Shaji	/	/	/	/	/	/	/	/	/	/	/	a	/	/	/	a	/	/	/	/	/	/	/	/	a	/	/	/	/	/
29	NCE16AU005	Akshay Bhasker Chakkalakkal	/	/	/	/	/	/	a	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/

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CERTIFICATE COURSE – 2017-2018 – EVEN SEMESTER – EXAM

HYBRID AND ELECTRICAL VEHICLE TECHNOLOGIES

ANSWER KEY

Answer all the Questions *Max Marks: 50 Marks*

1. Full form of FAME
   a) Features Advantage Make Efficiency
   b) Faster Adoption & Manufacturing of Electric vehicles
   c) Features Adoption & Making of Electric vehicles
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c) **Mild Hybrid Electric Vehicles (MHEV)**
d) Power Electric Vehicles (PEV)

8. A technology combines a combustion engine and an electric motor like an MHEV. The main difference is that it can also be charged from an external source of electricity, typically with a much larger battery than a MHEV, allowing a greater electric range.
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c) hybrids

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15. How were car builders affected by the Clean Air Act?

a) They looked for more oil.

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DEPARTMENT OF AUTOMOBILE ENGINEERING

CERTIFICATE COURSE – 2017-2018 – EVEN SEMESTER – EXAM

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- o Fuel Tank

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d) All of the reason listed.

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Student Name: AdhinRag. K. I

Register Number: NCE15AU001

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DEPARTMENT OF AUTOMOBILE ENGINEERING

CERTIFICATE COURSE – 2017-2018 – EVEN SEMESTER – EXAM

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e) Vehicle Tracking, ETA, Live Notifications, SOS

7. The Types of Electric Vehicle Available
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PAMPADY, THIRUVILWAMLA – 680 588

DEPARTMENT OF AUTOMOBILE ENGINEERING

CERTIFICATE COURSE – 2017-2018 – EVEN SEMESTER – EXAM

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PAMPADY, THIRUVILWAMALA - 680 588

DEPARTMENT OF AUTOMOBILE ENGINEERING

ENROLLEMENT LIST OF CERTIFICATE COURSE - 2017-18 - EVEN SEMESTER

Course Name : Hybrid and Electrical Vehicle Technologies

Sl No	Register Number	Student Name	Semester	Year	Marks
1	NCE15AU001	Adhinrag K I	VI	III	44
2	NCE15AU002	Akhilraj A	VI	III	34
3	NCE15AU003	Akshay K K	VI	III	34
4	NCE15AU004	Akshay Mohan	VI	III	36
5	NCE15AU005	Alister Reeve Xavier	VI	III	38
6	NCE15AU007	Anil V	VI	III	32
7	NCE15AU008	Antony Simon Glen Rozario	VI	III	36
8	NCE15AU009	V M Aravind	VI	III	34
9	NCE15AU011	Athul. R. Nair	VI	III	32
10	NCE15AU012	Deepak K J	VI	III	36
11	NCE15AU016	Jubin Scaria	VI	III	38
12	NCE15AU017	Leon Varghese A	VI	III	34
13	NCE15AU018	Mohamed Fairooz P	VI	III	36
14	NCE15AU020	Navaneeth Rackandi Sathiavel	VI	III	34
15	NCE15AU023	Pranav.p.m	VI	III	32
16	NCE15AU024	Rahul K	VI	III	30
17	NCE15AU025	Sagar P S	VI	III	40
18	NCE15AU026	Sharan Dev.k	VI	III	36
19	NCE15AU027	Shyamjith A	VI	III	34
20	NCE15AU028	Sreejesh K S	VI	III	32
21	NCE15AU030	Sreejith S	VI	III	36
22	NCE15AU031	Suresh Kumar V P	VI	III	38
23	NCE15AU033	Vaisakh Raj	VI	III	34
24	LNCE15AU035	Arjun K.v	VI	III	44
25	LNCE15AU036	Praveen K J	VI	III	34
26	NCE16AU002	Adithya Sekhar	IV	II	32
27	NCE16AU003	Akhil Pradeep	IV	II	30
28	NCE16AU004	Akhil Shaji	IV	II	32
29	NCE16AU005	Akshay Bhasker Chakkalakkal	IV	II	34
30	NCE16AU008	Arun Anand A	IV	II	36
31	NCE16AU010	Gopikrishnan S	IV	II	36
32	NCE16AU011	Gourisankar T G	IV	II	38
33	NCE16AU013	Joseph Chandy	IV	II	32
34	NCE16AU014	Levin Lorance	IV	II	34
35	NCE16AU015	Linso Solomon	IV	II	48
36	NCE16AU017	Muhammed Hafis K	IV	II	34
37	NCE16AU018	Muhammed Sharube K S	IV	II	36
38	NCE16AU019	Nithin K Das	IV	II	32

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Pampady, Thiruvilwamala, Thrissur Dt

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Sl No	Register Number	Student Name	Semester	Year	Marks
39	NCE16AU024	Sanjay C	IV	II	38
40	NCE16AU027	Sreejith P S	IV	II	36
41	NCE16AU030	Vimal D	IV	II	34
42	NCE16AU031	Vineeth M	IV	II	40
43	NCE15AU014	JAYAKRISHNAN A	IV	II	32
44	NCE17001	Abhijith Krishnan K	II	I	36
45	NCE17002	Akshay K S	II	I	34
46	NCE17003	Arjun S	II	I	34
47	NCE17004	Brijith S	II	I	36
48	NCE17005	Sanjay P V	II	I	38
49	NCE17006	Swopnil Saiprasad	II	I	42
50	NCAOEAU044	Vipin George	IV	IV	36

Head of the Department

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Pampady Thiruvilwamala Thrissur Dt
Pin 680 597 Kerala

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Date: 1 / 8 / 2017

From

Ajith G,
Course Coordinator,
Department of Automobile Engineering,
Nehru College of Engineering and Research Centre
Pampady, Thiruvilwamala - 680 588.

To

The Principal,
Nehru College of Engineering and Research Centre
Pampady, Thiruvilwamala - 680 588.

Through: HOD, Department of Automobile Engineering

Respected Madam,

SUB: Request for conducting Certificate Course for the even semester of 2017 - 2018 Academic Year - reg.

As per the circular number NCERC/3128/F/AC/14/17 on 04.07.2017, I may request you to conduct the certificate course for the even semester of the 2017-2018 academic year. The syllabus and lecture plan is attached herewith for your perusal.

Details of Course certificate:

Academic Year	Semester	Topic	Time	No of Hours
2017 - 2018	EVEN	Hybrid and Electrical Vehicle Technologies	4 pm - 5 pm	30

Kindly do the needful. Thank you.

Forwarded To Principal
1/8/17

Yours faithfully,

Ajith G
Assistant Professor – AUE.

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About us

Nehru College of Engineering and Research Centre(NCERC), situated on the Bank of the river Nila, is a premier Engineering college that has pioneered engineering education, research and training in the private sector. Established in 2002 by the founder chairman Shri P.K. Das, NCERC is committed to impart world class quality education in engineering and research. Dedicated to the service in the realm of technical education in Kerala, it is an ISO 9001:2015 certified institution, approved by All India Council for Technical Education (AICTE), affiliated to A P J Abdul Kalam Technological University(KTU) and is accredited by National Assessment and Accreditation Council (NAAC).

NCERC

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NEHRU COLLEGE OF ENGINEERING AND RESEARCH CENTRE, PAMPADY THRISSUR

PRESENTS

A COURSE ON

Hybrid and Electrical Vehicle

Technologies

DURING 2017-2018 EVEN SEMESTER

Cordinator

Mr. Ajith G

DEPARTMENT OF AUTOMOBILE ENGINEERING

NEHRU COLLEGE OF ENGINEERING & RESEARCH CENTRE
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www.ncerc.ac.in

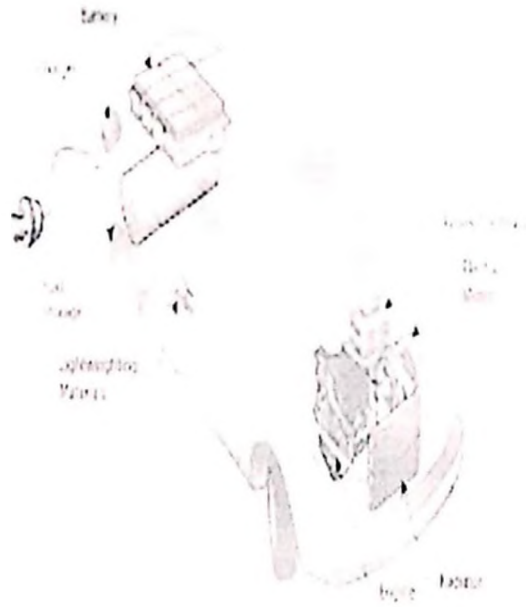


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About Course

Most automobile companies are vowing to switch to electric, a cleaner, and sustainable alternative. An electric revolution is coming to the automobile sector in India. But, the industry is facing a shortage of talented, aptly skilled engineers needed for the transition to electric drives as the primary source of motive power.

The electric vehicle online course provides advanced knowledge and hands-on, in design, analysis, control, calibration, and operating characteristics of H.EVs. Students a certified courses into your skill-set.



Hybrid and Electrical Vehicle

Course details

COURSE COORDINATOR



Mr. Ajith G

Assistant Professor,

Departement of Autombile Engineering

CONTACT

Email: ajithg@ncerc.ac.in

Phone: 9846599335

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NEHRU COLLEGE OF ENGINEERING AND RESEARCH CENTRE
THRISSUR - 680 588

ACERC

COURSE COMPLETION CERTIFICATE

Is presented to

Shyamjith A

For successfully completing the course on "Hybrid and Electrical Vehicle Technologies" organised by Department of Automobile Engineering, Nehru College of Engineering and Research Centre, Thrissur during even semesters of 2017-2018 academic year.

Program Coordinator

HoD

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THRISSUR - 680 588

COURSE COMPLETION CERTIFICATE

Is presented to

Suresh Kumar V P

For successfully completing the course on "Hybrid and Electrical Vehicle Technologies" organised by Department of Automobile Engineering, Nehru College of Engineering and Research Centre, Thrissur during even semesters of 2017-2018 academic year.

Program Coordinator

HoD

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NCERC

COURSE COMPLETION CERTIFICATE

Is presented to

Abhijith Krishnan K

For successfully completing the course on "Hybrid and Electrical Vehicle Technologies" organised by Department of Automobile Engineering, Nehru College of Engineering and Research Centre, Thrissur during even semesters of 2017-2018 academic year.

Program Coordinator

HoD

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NEHRU COLLEGE OF ENGINEERING AND RESEARCH CENTRE



Computer Science and Engineering

From,

Mr. Gireesh R

Assistant Professor,

CSE Department, NCERC, PAMPADY.

To,

The Principal,

NCERC, PAMPADY.

Through HOD

Respected Madam,

SUBJECT: Request for Conducting a Certificate Course. Reg.

Students need a deep understanding of upcoming methodologies to enhance knowledge dissemination for doing projects. IoT(Internet of things) devices with its modules which uses sensor data collection. And the control or management is done based on clouds. By taking this course students will gain an understanding of core technologies. Also the platform required for IoT and cloud. So the department of Computer Science and Engineering would like to conduct a Certificate Course on "IoT (Internet of Things) Wireless and Cloud Computing Emerging Technologies" from 24-01-2018. It will be a 30-hour course scheduled from January to March of this academic year 2017-2018. Kindly requesting you to grant the permission for the same.

All UG/PG Engineering students of CSE Departments are Eligible for this course.

Thank you for your consideration. I look forward for your response soon.

Place: Pampady

Date: 10/01/2018

Sincerely,
R. Gireesh

Forwarded to Principal
Head in charge

NEHRU COLLEGE OF ENGINEERING & RESEARCH CENTRE
PAMPADY
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THRISSUR-DT

Permitted
11/1/2018

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(Approved by AICTE, Affiliated to University of calicut and APJ Abdul Kalam Technological University, Kerala)

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ADMISSION TO CERTIFICATE COURSE (2017-2018)

Applications are invited for admission for the Add-On Course 'IoT(Internet of Things) Wireless and Cloud Computing Emerging Technologies' offered by the Department of Computer Science and Engineering, Nehru College of Engineering and Research Centre, Pampady, Thrissur.

Eligibility Criteria:

All UG/PG Engineering students of CSE department are Eligible.

Interested Students can give their names to respective class advisors on before 17-01-2018.

*For First Years, Date is 23-01-2018.

Timing:

1 hour per day for 30 days from 4.00pm to 5.00pm. Saturday and Sunday may be used at the discretion of the Department.

Attendance:

A minimum of 75% attendance is required for writing the examination.

In portant Dates:

Con. · encement of Classes: 24-01-2018

Examination date : 19-03-2018

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HOD

	IoT CERTIFIED COURSE		
Module	Contents	Hours	Exam Marks
I	IoT Business & Products, influence of IoT, differences in IoT products and services, introduction of the types of leading IoT companies and products, Atmel, Android Things, Samsara, ZingBox, and Uber, IoT services types (M2M, M2P, P2M, P2P) and their economic impact, advantages of IoT applications, "IoT Architecture & Technologies, functionality and characteristics of the IoT architecture layers,WSN (Wireless Sensor Networks), IoT cloud computing, IoT R&D (Research & Development), IoT hardware technologies, descriptions of the characteristics of IoT sensors types, actuator types, and RFID types ,	10	30%
II	functionality and characteristics of IoT device platforms, Arduino, Raspberry Pi, BeagleBoard products,Beaglebone Black, and the Arduino systems Uno R3 (for entry and general purpose), Yun (for IoT), and Lilypad (for wearable).IoT Networks, functionality and characteristics of IoT wireless networks, the IoT network architecture,wearableIoT networks, requency requirements, the characteristics and requirements of the ISM (Industrial, Scientific and Medical) band ,	10	30%
III	functionality and characteristics of IoT wireless communication technologies based on WLAN (Wireless Local Area Network), WPAN (Wireless Personal Area Network), and LPWAN (Low-Power Wide Area Network), advantages of IoT and 5G mobile communication networks, internal process of Wi-Fi operations and role of DCF , Wi-Fi PHY (Physical Layer) modulation scheme, IFS (Inter-Frame Space) types, Cloud market analysis, Cloud service types, MCC (Mobile Cloud Computing), and Edge Computing technology.	10	40%

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'IoT(Internet of Things)
Wireless and Cloud Computing Emerging Technologies'

ATTENDANCE SHEET

SL. N	REG NO	NAME	DATE 18
1	NCAMECS001	AATHIRA M	
2	NCAMECS002	ABHIRAM C M	
3	NCAMECS003	AJITHKUMAR K	
4	NCAMECS004	AJITH THOMAS	
9	NCAMECS010	AMRUTHAJAYARAJ K	
10	NCAMECS011	ANIL KIRAN S P	
11	NCAMECS012	ANIRUDH A WARRIER	
12	NCAMECS013	ANJALI I	
13	NCAMECS014	ANOOP JOHN	
14	NCAMECS015	ANU B	
15	NCAMECS016	ARJUN R SEKHAR	
16	NCAMECS017	ATHIRA P	
17	NCAMECS018	ATHIRA T M	
18	NCAMECS019	ATHIRA V	
19	NCAMECS020	ATHULYA O K	
20	NCAMECS021	BHAVYA K	
21	NCAMECS022	CHARUTH S	
22	NCAMECS023	DARSHANA	
23	NCAMECS024	DEVI R	
24	NCAMECS025	FIVI ROSE P A	
25	NCAMECS026	G APARNA	
26	NCAMECS027	GREESHMA S	
27	NCAMECS028	JESII Y MOL A	
28	NCAMECS029	JISHNU P V	
29	NCAMECS032	MADHURI K	
30	NCAMECS033	MEERA V	
31	NCAMECS034	MEHAK S N	
32	NCAMECS035	MELONY MATHEW	

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SL.NO	REG NO	NAME	DATE
51	NCANECS008	ANJU S	
52	NCANECS009	ARUN K L	
53	NCANECS010	ARYA PRAKASH	
54	NCANECS011	ASHIDA C	
55	NCANECS012	ASHIN P CHANDRAN	
56	NCANECS013	ASHIQ JURAIJ M M	
57	NCANECS015	BALALINATH R	
58	NCANECS019	HARIKRISHNAN P N	
59	NCANECS020	HARI SANKAR K M	
60	NCANECS021	HARISHMA J	
61	NCANECS022	INDU K S	
62	NCANECS023	JENI NARAYANAN L A	
63	NCANECS024	JERIN K ROY	
64	NCANECS025	JISHNU P	
65	NCANECS026	JITHIN RAJEEV	
66	NCANECS033	MEGALA G	
67	NCANECS034	MUHAMMED JUMAIL	
68	NCANECS035	MOHAMMED RIYAS R	
69	NCANECS036	MUHAMMED RAFI E	
70	NCANECS037	NAJLA HANEEF	
71	NCANECS038	NEETHA M	
72	NCANECS040	RADHIKA K	
73	NCANECS041	RESHMA V G	
74	NCANECS042	SACHIN SUNIL KUMAR	
75	NCANECS043	SANJAY VIDYANATHAN	
76	NCANECS052	THOOLIKA C A	
77	NCANECS053	VIDYA WARRIER	
78	NCANECS054	VINEESH A V	
79	NCANECS055	VISHNU K J	
80	NCANECS056	VIVEK H	
81	NCANECS057	VIVEK M V	

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IoT (Internet of Things

Wireless and Cloud Computing Emerging Technologies

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SL.NO	REG NO	NAME	DATE
83	NCAOECS052	MOHAMMED SHAFEEQ T P	/ / / / / a / / / / /

IoT (Internet of Things
Wireless and Cloud Computing Emerging Technologies

ATTENDANCE SHEET

SL.NO	REG NO	NAME	DATE: 24/1	25/1	26/1	29/1	30/1	31/1	1/2	2/2	5/2	6/2	7/2	8/2	9/2	12/2	15/2	16/2	19/2	20/2	22/2	26/2	27/2	5/3	6/3	7/3	8/3	9/3	12/3	13/3	14/3	15/3
108	NCE15CS002	Abhijith C	/	/	/	/	/	/	/	a	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	a	/
109	NCE15CS004	Adith K V	/	/	a	/	/	/	/	/	/	/	/	/	/	/	/	/	/	a	/	/	/	a	/	/	/	/	/	/	/	a
110	NCE15CS006	Aishwarya Ravi	/	/	/	/	a	/	/	/	/	/	/	a	/	/	/	/	a	/	/	/	/	/	a	/	/	/	a	/	/	/
111	NCE15CS007	Aiswarya S Prakash	/	/	/	/	/	/	a	/	/	/	/	/	/	/	/	a	/	/	/	/	/	/	/	/	/	/	/	/	/	/
112	NCE15CS008	Ajith P.g	/	/	/	/	/	/	/	a	/	/	/	/	/	/	/	/	/	/	a	/	/	/	/	/	/	/	/	a	/	/
113	NCE15CS010	Akhila Keshav	/	/	/	/	/	a	/	/	a	/	/	/	/	/	/	/	/	/	/	/	/	/	a	/	/	/	/	/	/	/
114	NCE15CS011	Akhila N	/	a	/	/	/	/	/	/	/	a	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	a	/
115	NCE15CS012	Amrutha K B	/	/	/	/	/	/	/	a	/	/	/	a	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/
116	NCE15CS013	Anagha S Thadathil	/	/	/	/	/	/	/	a	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	a	/	/
117	NCE15CS014	Anjali Sunil	/	/	/	/	/	/	/	/	/	/	/	/	/	/	a	/	/	/	/	/	/	/	/	a	/	/	/	/	/	/
118	NCE15CS015	Anjana Das	/	/	/	/	/	a	/	/	a	/	/	/	a	/	/	/	a	/	/	/	/	/	/	/	/	/	/	/	/	/
119	NCE15CS016	Anusha K A	/	/	/	/	/	/	/	/	/	a	/	/	/	/	/	/	/	/	a	/	/	/	/	/	/	/	/	/	a	/
120	NCE15CS017	Arjun Jayesh	a	/	/	/	/	/	/	a	/	/	/	/	/	a	/	/	/	a	/	/	/	/	a	/	/	/	/	/	/	/
121	NCE15CS018	Aswathy.m.k	/	/	/	a	/	/	/	/	/	/	/	a	/	/	/	/	/	/	/	/	/	/	/	/	/	a	/	/	/	/
122	NCE15CS019	Athulya M K	/	/	/	/	a	/	/	/	/	a	/	/	/	/	/	/	/	/	/	/	a	/	/	/	a	/	/	/	/	a
123	NCE15CS026	Geethu Seby	/	/	/	/	/	a	/	/	/	/	/	/	/	/	a	/	/	/	/	a	/	/	/	/	/	/	/	/	/	/
124	NCE15CS027	Heera Mohan	/	/	a	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	a	/	/	/	/	/	/	a	/	/	/	/
125	NCE15CS028	Ijas Ali	/	/	/	/	/	/	/	a	/	/	/	/	/	/	/	a	/	/	/	a	/	a	/	/	/	/	/	/	/	/
126	NCE15CS029	Jayalakshmi S	/	a	/	/	a	/	/	/	/	/	/	a	/	/	/	/	/	/	a	/	/	/	/	/	/	/	/	/	/	/
127	NCE15CS030	Jayaraj.a	/	/	/	/	/	/	/	/	/	/	/	/	/	a	/	/	/	/	/	a	/	/	a	/	/	a	/	/	/	/
128	NCE15CS031	Jijo Daniel	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	a	/	/	/	a	/	/	/	/	a	/	/	/
129	NCE15CS032	Jithin Palathingal	/	/	/	/	/	a	/	/	a	/	/	/	/	/	/	/	/	/	/	/	/	a	/	/	/	/	/	/	/	/
130	NCE15CS033	Jithin P Ganesh	/	/	/	/	/	/	/	/	a	/	a	/	/	a	/	/	/	/	/	/	/	/	/	/	/	/	/	/	a	/
131	NCE15CS034	Jovial John George	/	/	/	/	/	/	a	/	/	/	/	/	/	/	/	/	a	/	/	/	/	/	/	a	/	/	/	/	/	/
132	NCE15CS035	Keerthana Unnikrishnan	/	/	/	a	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	a	/	/	/	/	/	/	/	/	a	/
133	NCE15CS037	Niya Thomas	/	/	/	/	/	/	/	/	a	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	a
134	NCE15CS038	Meera M	/	a	/	/	/	/	/	a	/	/	/	/	/	/	/	a	/	/	/	/	/	/	/	/	/	/	/	/	/	/
135	NCE15CS040	Mena George C	/	/	/	/	a	/	/	/	/	/	/	/	/	/	/	/	/	/	/	a	/	/	/	/	/	/	a	/	/	/
136	NCE15CS041	Muhammed Anoop P N	/	/	/	/	/	/	/	/	a	/	/	a	/	/	/	/	/	/	a	/	/	/	/	/	/	/	/	/	/	/
			1	3	2	2	4	4	2	7	3	6	0	4	3	2	3	3	3	3	4	4	3	3	4	2	2	2	2	4	5	3

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SL.NO.	REG NO	NAME	DATE
137	NCE15CS004	Adith K V	
138	NCE15CS006	Aishwarya Ravi	
139	NCE15CS007	Aiswarya S Prakash	
140	NCE15CS008	Ajith P.g	
141	NCE15CS010	Akhila Keshav	
142	NCE15CS011	Akhila N	
143	NCE15CS012	Amrutha K B	
144	NCE15CS013	Anagha S Thadathil	
145	NCE15CS014	Anjali Sunil	
146	NCE15CS015	Anjana Das	
147	NCE15CS025	Diya Lakshmi P	
148	NCE15CS026	Geethu Seby	
149	NCE15CS027	Heera Mohan	
150	NCE15CS028	Ijas Ali	
151	NCE15CS029	Jayalakshmi S	
152	NCE15CS030	Jayaraj.a	
153	NCE15CS031	Jijo Daniel	
154	NCE15CS032	Jithin Palathingal	
155	NCE15CS033	Jithin P Ganesh	
156	NCE15CS034	Jovial John George	
157	NCE15CS035	Keerthana Unnikrishnan	
158	NCE15CS037	Liyas Thomas	
159	NCE15CS055	RAHUL K	
160	NCE15CS056	RAPHEL SHAJI	
161	NCE15CS057	RAHANA K C	
162	NCE15CS058	RESHMI M	
163	NCE15CS059	RISHIKA P P	
164	NCE15CS060	ROHIT	
165	NCE15CS061	ROHITH M S	
166	NCE15CS062	ROOPESH R	
167	NCE15CS063	SAFNA A M	
168	NCE15CS064	SANJAI A	
169	NCE15CS065	SHAFNA S	
170	NCE15CS066	SHAHANA P B	
171	NCE15CS067	SHYAM PRAKASH S	
172	NCE15CS068	SINDHUJA M S	
173	NCE15CS070	SNEHA C	
			6 5 6 5 6 5 5 5 4 9 6 4 5 6 5 4 4 5 4 6 3 7 6 6 3 3 7 7 7 6

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IoT (Internet of Things
Wireless and Cloud Computing Emerging Technologies

ATTENDANCE SHEET

SL.NO	REG NO	NAME	DATE 24/1/18 25/1 29/1 30/1 31/1 1/2 5/2 6/2 8/2 9/2 12/2 13/2 15/2 16/2 19/2 20/2 22/2 23/2 26/2 27/2 28/2 1/3 5/3 6/3 7/3 8/3 9/3 12/3 13/3 14/3 15/3
174	NCE16CS006	ADARSH R	
175	NCE16CS007	ADITHYAN D	
176	NCE16CS008	ADITHYA PADMANABHAN	
177	NCE16CS009	AGIL KRISHNA	
178	NCE16CS010	AHLAD V K	
179	NCE16CS011	AISWARYA JAGADEES	
180	NCE16CS012	AISWARYA RAJ	
181	NCE16CS013	AJAY E K	
182	NCE16CS014	AJMAL ROSHAN	
183	NCE16CS015	AKHILA V	
184	NCE16CS018	AKHIL M	
185	NCE16CS019	AKHIL T P	
186	NCE16CS020	AKSHAY KUMAR R	
187	NCE16CS022	AMRUTHA R	
188	NCE16CS023	ANAND KRISHNAN N M	
189	NCE16CS038	BIJITH KALADHARAN	
190	NCE16CS039	CHAITHRA K M	
191	NCE16CS040	CHELOOR SARAVANAN MOHANDAS	
192	NCE16CS041	DEEPTHIDAS R	
193	NCE16CS042	DHANISH I	
194	NCE16CS043	DHANYA V	
195	NCE16CS044	DHAYA V NAIR	
196	NCE16CS045	DHRISHYA VIJAYAN	
197	NCE16CS046	FIDHA C S	
198	NCE16CS074	NAIR KRISHNANJALI KRISHNAN	
199	NCE16CS076	NIKHIL M	
200	NCE16CS079	NIYAS S	
201	NCE16CS080	PARVATHI P	
202	NCE16CS081	PARVATHY M	
203	NCE16CS082	P GOUTHAM	
204	NCE16CS083	POOJA KRISHNAN	
205	NCE16CS084	POOJA S NAIR	
206	NCE16CS085	PRANAV A K	
207	NCE16CS087	PRASAD PRAVEEN	
208	NCE16CS088	PRIYAMVADA K	
209	NCE16CS089	RAJKIRAN V R	
210	NCE16CS090	RAMSIYA M	
			3 5 6 4 6 6 4 2 5 4 6 3 11 3 3 6 5 4 3 3 3 3 5 4 3 3 5 3 4 5

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his set of IOT Multiple Choice Questions & Answers focuses on "Sending and Receiving Data in Real Time Through Internet".

1. _____ allows us to control electronic components
   a) RETful API
   b) RESTful API
   c) HTTP
   d) MQTT

2. MQTT stands for _____
   a) MQ Telemetry Things
   b) MQ Transport Telemetry
   c) MQ Transport Things
   d) MQ Telemetry Transport

3. MQTT is _____ protocol.
   a) Machine to Machine
   b) Internet of Things
   c) Machine to Machine and Internet of Things
   d) Machine Things

4. Which protocol is lightweight?
   a) MQTT
   b) HTTP
   c) CoAP
   d) SPI

5. PubNub publishes and subscribes _____ in order to send and receive messages.
   a) Network
   b) Account
   c) Portal
   d) Keys

6. By clicking which key the PubNub will display public, subscribe, and secret keys.
   a) Pane
   b) Demo Keyset
   c) Portal
   d) Network

7. The messageChannel class declares the _____ class attribute that defines the key string.
   a) command_key
   b) command-key
   c) commandkey

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d) Key_command

8. _____ method saves the received arguments in three attributes.
   a) __Init
   b) Init__
   c) __Init__
   d) _init_

9. _____ and _____ saves the publish and subscribe keys that we have generated with the PubNub Admin portal.

   a) public_key and subscribe_key
   b) Public-key and subscribe-key
   c) publickey and subscribekey
   d) Key_public and key_subscribe

10. _____ specifies the function that will be called when there is a new message received from the channel.
    a) Reconnect
    b) Error
    c) Connect
    d) Callback

11. _____ specifies the function that will be called on an error event.
    a) Callback
    b) Error
    c) Connect
    d) Reconnect

12. _____ Specifies the function that will be called when a successful connection with the PubNub cloud.
    a) Callback
    b) Error
    c) Connect
    d) Reconnect

13. _____ specifies the function that will be called when a successful re-connection is completed.
    a) Callback
    b) Error
    c) Connect
    d) Reconnect

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14. _____ specifies the function that will be called when the client disconnects.
    a) Callback
    b) Error
    c) Connect
    d) Disconnect

15. The number of elements in the Open IoT Architecture?
    a) 6 elements
    b) 8 elements
    c) 7 elements
    d) 3 elements

16. Global Sensor Network is built for _____
    a) Reducing cost and time for development
    b) Reducing cost and increasing time for development
    c) Increasing cost and increasing time for development
    d) Increasing cost and decreasing time for development

17. The huge number of devices connected to the Internet of Things has to communicate automatically, not via humans. What is this called?
    a) Skynet
    b) Bot 2 Bot
    c) Machine 2 Machine
    d) Intercloud

18. Internet of Things needs a lot of network connection. What is the proposed "white Space" radio standard called?
    a) Bluetooth
    b) WiMax
    c) Weightless
    d) Zigbee

19. What is the sensor/protocol used in GSN?
    a) HTTP protocol
    b) CoAP protocol
    c) MQTT protocol
    d) XMPP protocol

20. 7. Which is the core wrapper of GSN?
    a) Serial
    b) UDP
    c) GPSTest

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d) ZeroMQWrapper

21. 8. Open IoT ontology is extending the W3C SSN ontology which supports the description of the physical and processing structure of sensors.
    a) True
    b) False

22. 9. Open IoT manages the registration, data acquisition, deployment of sensors and interconnected of objects, through which network?
    a) GSN
    b) X-GSN
    c) LSM
    d) HTTP

23. 10. Which environment does Global Sensor Network work on?
    a) C++
    b) JAVA
    c) HTML
    d) C

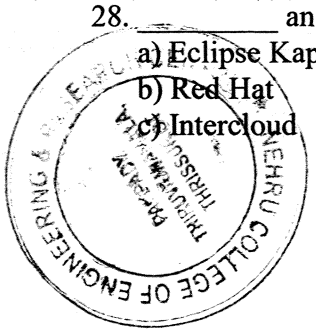
24. . _____ is a community that is working together to establish an IoT architecture.
    a) Eclipse IoT
    b) Red Hat
    c) Intercloud
    d) Bot 2 Bot

25. _____ provides a middleware and application container for IoT gateway.
    a) Eclipse Kura
    b) Red Hat
    c) Intercloud
    d) Bot 2 Bot

26. 13. _____ is a modular and cloud based platform.
    a) Eclipse Kura
    b) Red Hat
    c) Intercloud
    d) Eclipse Kapua

27. Kapua also provides a core integration framework.
    a) True
    b) False

28. _____ an open source stack for gateways and the edge.
    a) Eclipse Kapua
    b) Red Hat
    c) Intercloud



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d) Eclipse Kura

29. API enables services portability between _____
    a) Systems
    b) Devices
    c) Networks
    d) Services

30. Ubiquitous service provision depends on _____
    a) QoS
    b) Management
    c) Interoperability
    d) Routing

31. API architecture not only includes critical elements but also caters for _____
    a) System
    b) Devices
    c) Network
    d) Multi homing

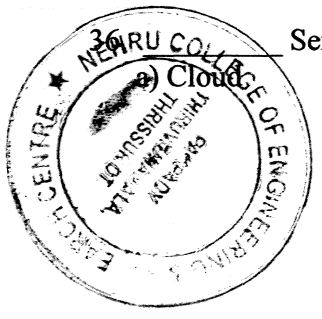
32. All portals are embedded into a single supercomputer, known as _____
    a) Network
    b) Web
    c) Internet
    d) System

33. . _____ is uniquely identifiable embedded computing devices.
    a) Internet
    b) IoT
    c) Bigdata
    d) Cloud

34. Web is a mesh of computers, so too is _____
    a) IoT
    b) Bigdata
    c) Cloud
    d) Internet

35. Without _____ computers embedded in house keys are worthless.
    a) Data
    b) Services
    c) Both Data and Services
    d) Neither data nor services

36. _____ Services are the way in which the IoT is connected to data.
    a) Cloud



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b) Bigdata
c) Internet
d) Network

37. IoT solutions are at the heart of IDC's view of the _____
a) Three
b) Two
c) One
d) Four

38. _____ are the inter connectors.
a) Web
b) Internet
c) Network
d) APIs

39. Which one is not an element of IoT
a. people
b. process
c. security
d. things

40. Which is not true about GainSpans GS2000 Protocol
a. gs2000 protocol is for internet of things (iot)
b. gainspans gs2000 tech uses only zigbee
c. gainspans gs2000 is one such tech which used both zigbee and wi-fi
d. it makes optimum use of power by putting the device into energy-saving standby mode when no data transmission is taking place

41. What risks and challenges should be considered in the Internet of Everything?
a. privacy and security
b. energy consumption
c. network congestion
d. all of the above

42. Bluegiga APx4 Protocol supports
a. only ble
b. only wifi
c. both ble and wifi
d. none of the above

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43. What us IIoT ?

a. information internet of things
b. industrial internet of things
c. innovative internet of things
d. none of the above

44. Who invented the term the Internet of Things?

a. bill gates
b. kevin ashton
c. steve jobs
d. mcdonald

45. The huge numbers of devices connected to the Internet of things have to communicate automatically, not via humans. What is thiscalled?

a. bot to bot (b2b)
b. machine to machine (m2m)
c. intercloud
d. skynet

46. Who said this? The internet will disappear. There will be so many IP addresses, so many devices, sensorsâ€¦ that it will be part of yourpresence all the time. Imagine you walk into a room and you are interacting with the things going on in there

a. facebook founder mark zuckerberg
b. microsoft chairman bill gates
c. google chairman eric schmidt
d. late apple founder steve jobs

47. What is the size of the IPv6 addressed ?

a. 32 bits
b. 64 bits
c. 128 bits
d. 256 bits

48. What is the name of the first recognized IoT device ?

a. smart watch
b. atm

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c. radio

d. video game

49 _____ is being used by Internet of Things

a. radio identification technology

b. satellite

c. cable

d. broadband

50 _____ best describes the MQTT protocol

a. machine-to-machine (m2m)

b. publish / subscribe

c. request / response

d. mesh networking

51. The Internet of Things will run on many communication standards. Which of these is not a standard body or protocol?

a. zigbee

b. allsean

c. tyrell

d. z-wave

52. When was the term IoT first coined?

a. 1998

b. 1999

c. 2000

d. 2001

53. When did IoT devices surpass people in number?

a. 2005

b. 2006

c. 2007

d. 2008

54. How many key features must an IoT device have, according to The Internet of Things Global Standards?

a. 5

b. 6

c. 7

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d. 8

55. The Internet of Things will run on many communication standards. Which of these is not a standard body or protocol?

a. zigbee

b. allsean

c. tyrell

d. z-wave

56. Which is not one of the features of Internet of Things devices ?

a. remotely controllable

b. programmable

c. can turn themselves off if necessary

d. all are features

57 How many devices are estimated to be connected to the Internet of Things by 2020?

a. approx.. 2 million

b. approx.. 20 million

c. approx.. 75 million

d. approx.. 100 million

58. This alliance is composed of 20 world technology leaders working to develop standards and protocols for device communication

a. allaboard

b. allconnected

c. alldevyce

d. alljoyn

59 IANA stands for:

a. Internal Assessment Numerical Access

b. Internet Association Numbers Authority

c. International Aid for Network Automation

d. Internet Assigned Numbers Authority

60 Standard port number for secure MQTT is:

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a. 1883

b. 8000

c. 8883

d. 8888

61 Bluetooth 5.0 promises:

a. 4x Speed, 2x Range, 2x Data

b. 6x Speed, 3x Range, 3x Data

c. 2x Speed, 4x Range, 8x Data

d. 3x Speed, 4x Range, 8x Data

62 Terms SSL and TLS stand for:

a. Secure Socket Layers and Transport Layer Session

b. Secure Socket Layers and Transport Layer Security

c. Secure Socket Layout and Transport Level Session

d. Session Socket Layers and Transport Layer Session

---

63 Which one out of these is not a data link layer technology:

a. Bluetooth

b. UART

c. WiFi

d. HTTP

---

64 Which transport layer protocols is used by DHCP?

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a. RSVP

b. TCP

c. DCCP

d. UDP

65 Which layer is called a port layer in OSI model:

a. Session

b. Application

c. Presentation

d. Transport

---

66 What is a firewall in computer networks:

a. A system designed to prevent unauthorized access

b. A web browser

c. The physical boundary of network

d. The Network Operating System

67 Router operate at ..... layer of OSI reference model?

a. Layer 2 (Data Link)

b. Layer 3 (Network)

c. Layer 1 (Physical)

d. Layer 4 (Transport)

---

68 Each IP packet must contain:

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a. Only Destination IP Address

b. Only Source IP Address

c. None of Above

d. Source and destination IP Addresses

---

69 Which one of this is not a networking device:

a. Router

b. Switch

c. Bridge

d. Traffic Analyzer

---

70 What is the standard length of MAC address:

a. 16 bits

b. 32 bits

c. 48 bits

d. 64 bits

---

71 What is the use of Ping command:

a. To know network speed

b. None of the above

c. To test a host on the network is reachable

d. To test storage device

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72 What is Secure Shell (SSH):

a. A router

b. A firewall

c. A network protocol

d. Python Shell

---

73 What does VNC stand for:

a. Various Network computers

b. Virtual Network Computing

c. None of the above

d. Virtual Network Communication

---

74 What is the purpose of bin directory in Linux environment:

a. Contains essential device files

b. Contains essential binary commands

c. Containing configuration files

d. Contains user home directories

---

75 What is Inter Integrated Communication(I2C):

a. An application layer protocol

b. A networking communication protocol for multi-master support

c. An OS for distributed network communication

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d. A cellular communication protocol

---

76 How many wires does SPI protocol use:

a. 2

b. 3

c. 1

d. 4

77 hat does LTE stand for:

a. Long Term Errors

b. Long Term Evolution

c. Lengthy Terminal Estimation

d. Long Term Estimates

---

78 Which one out of these is not LPWAN technologies:

a. SigFox

b. WiFi

c. NB-IoT

d. LoRa

---

79 Frequency band used by 802.11 ah standard is:

a. 60 GHz

b. 2.4 GHz

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c. Sub 1 GHz

d. 5 GHz

---

80 Fuzzy Logic is a form of:

a. Hexa state logic

b. Two-valued logic

c. Binary set logic

d. Many valued logic

---

81 _____ involves predicting a response with meaningful magnitude, such as quantity sold, stock price, or return on investment.

a. Summarization

b. Clustering

c. All of the mentioned

d. Regression

---

82 Which of the following language is preferred for IoT analytics ?

a. Python

b. S

c. R

d. All of the mentioned

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83 Which one is simplest form of analytics

a. Predictive

b. Descriptive

c. All of the mentioned

d. Prescriptive

84 The method by which companies analyze customer data or other types of information in an effort to identify patterns and discover relationships between different data elements is often referred to as

a. Customer data management

b. Data mining

c. Data digging

d. None of the above

85 A collection of lines that connects several devices is called .....

a. Bus

b. Cable

c. Power line

d. Transmission Line

86 HTTP resources are located by

a. unique resource locator

b. unique resource identifier

c. none of the mentioned

d. uniform resource identifier

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91 WPA is a security mechanism in

a. WiFi

b. Cloud

c. Bluetooth

d. Ethernet

92 Network topology with a central hub or switch is

a. Mesh

b. Token ring

c. Star

d. Token bus

---

93 Internet domain name and hostname are translated into IP address by

a. Domain name system

b. Domain name database

c. Router

d. Domain information system

94 How many times setup function runs in Arduino IDE:

a. None of the above

b. 10

c. 2

d. 1

95 How many times loop function runs in Arduino IDE:

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a. 4

b. forever

c. 1

d. 5

96 What error occurs when you execute?
x = abc

a. NameError

b. SyntaxError

c. ValueError

d. TypeError

97 PWM stands for:

a. None of the above

b. Pulse Width Mode

c. Pulse With Modulation

d. Pulse Width Modulation

98 Raspbian is:

a. Assembler

b. Language

c. Compiler

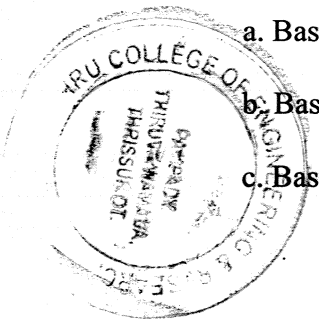
d. OS

99 .MQTT is:

a. Based on client-server architecture

b. Based on publish-subscribe architecture

c. Based on both of the above



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d. Based on none of the above

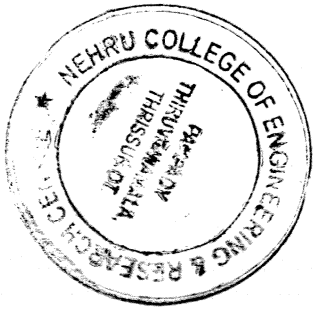
100 In a piconet, there can be up to _____ parked nodes in the net.

a. 511

b. 63

c. 255

d. 127



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IoT MULTIPLE CHOICE QUESTION ANSWERS

1-a	2-d	3-c	4-a	5-d	6-b	7-a	8-c	9-a	10-d	11-b	12-c	13-d
14-d	15-c	16-a	17-a	18-c	19-c	20-b	21-d	22-a	23-b	24-b	25-a	26-a
27-d	28-a	29-d	30-a	31-c	32-d	33-b	34-b	35-a	36-c	37-a	38-a	39-c
40-b	41-d	42-c	43-b	44-b	45-b	46-c	47-c	48-b	49-a	50-c	51-c	52-b
53-d	54-c	55-c	56-d	57-d	58-d	59-d	60-c	61-c	62-b	63-d	64-d	65-a
66-a	67-b	68-d	69-d	70-c	71-c	72-c	73-b	74-b	75-b	76-d	77-b	78-b
79-c	80-d	81-d	82-a	83-b	84-b	85-a	86-d	87-d	88-c	89-c	90-b	91-a
92-c	93-a	94-d	95-b	96-a	97-d	98-d	99-b	100-c				

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CERTIFICATE

This is to Certify that **Mr. NELSON O** of Electrical and Electronics Engineering Department has successfully completed the Certificate/Addon Course on ADVANCED CONTROL STRATEGIES ON ELECTRIC VEHICLES from 10/07/2017 to 15/07/2017 at Nehru College of Engineering & Research Centre, Pamapdy.

Course Coordinator

HoD
EEE Department

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CERTIFICATE

This is to Certify that **Mr. ARAVIND S SANKAR** of Electrical and Electronics Engineering Department has successfully completed the Certificate/Addon Course on ADVANCED CONTROL STRATEGIES ON ELECTRIC VEHICLES from 10/07/2017 to 15/07/2017 at Nehru College of Engineering & Research Centre, Pamapdy.

Course Coordinator

HoD
EEE Department

Principal
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This is to Certify that **Ms. PRAJITHA K NAIR** of Electrical and Electronics Engineering Department has successfully completed the Certificate/Addon Course on ADVANCED CONTROL STRATEGIES ON ELECTRIC VEHICLES from 10/07/2017 to 15/07/2017 at Nehru College of Engineering & Research Centre, Pamapdy.

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This is to Certify that **Ms. ASWATHY A** of Electrical and Electronics Engineering Department has successfully completed the Certificate/Addon Course on ADVANCED CONTROL STRATEGIES ON ELECTRIC VEHICLES from 10/07/2017 to 15/07/2017 at Nehru College of Engineering & Research Centre, Pamapdy.

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This is to Certify that **Ms.LESLY CATHERINE** of Electrical and Electronics Engineering Department has successfully completed the Certificate/Addon Course on ADVANCED CONTROL STRATEGIES ON ELECTRIC VEHICLES from 10/07/2017 to 15/07/2017 at Nehru College of Engineering & Research Centre, Pamapdy.

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CERTIFICATE

This is to Certify that **Mr.ATHUL B** of Electrical and Electronics Engineering Department has successfully completed the Certificate/Addon Course on ADVANCED CONTROL STRATEGIES ON ELECTRIC VEHICLES from 10/07/2017 to 15/07/2017 at Nehru College of Engineering & Research Centre, Pamapdy.

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This is to Certify that **Ms. GOPIKA S** of Electrical and Electronics Engineering Department has successfully completed the Certificate/Addon Course on ADVANCED CONTROL STRATEGIES ON ELECTRIC VEHICLES from 10/07/2017 to 15/07/2017 at Nehru College of Engineering & Research Centre, Pamapdy.

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This is to Certify that Ms.AARDHRA T V of Electrical and Electronics Engineering Department has successfully completed the Certificate/Addon Course on ADVANCED CONTROL STRATEGIES ON ELECTRIC VEHICLES from 10/07/2017 to 15/07/2017 at Nehru College of Engineering & Research Centre, Pamapdy.

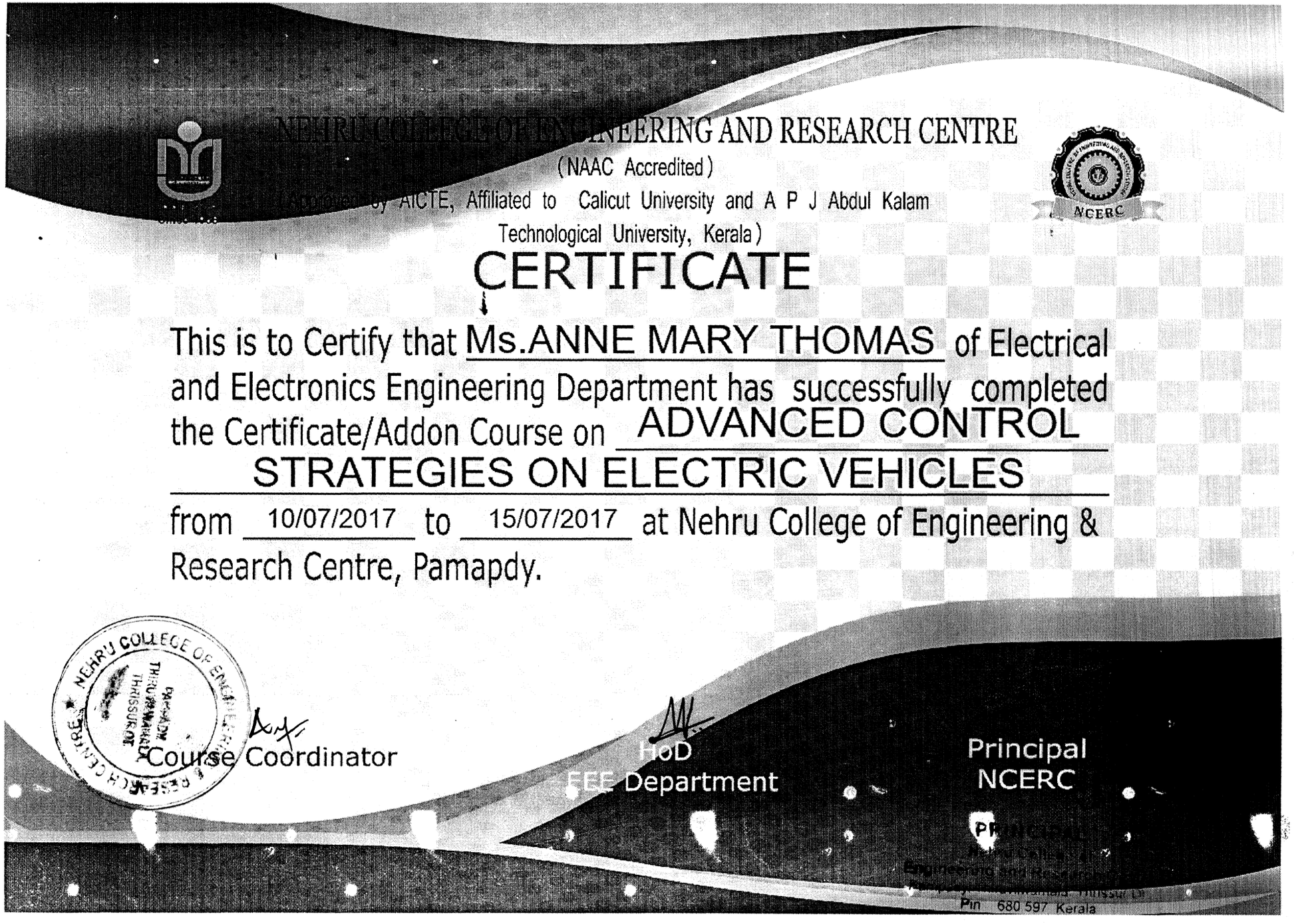
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CERTIFICATE

This is to Certify that Ms.ANNE MARY THOMAS of Electrical and Electronics Engineering Department has successfully completed the Certificate/Addon Course on ADVANCED CONTROL STRATEGIES ON ELECTRIC VEHICLES from 10/07/2017 to 15/07/2017 at Nehru College of Engineering & Research Centre, Pamapdy.

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This is to Certify that Ms.GOPIKA KRISHNAN K of Electrical and Electronics Engineering Department has successfully completed the Certificate/Addon Course on ADVANCED CONTROL STRATEGIES ON ELECTRIC VEHICLES from 10/07/2017 to 15/07/2017 at Nehru College of Engineering & Research Centre, Pamapdy.

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Performance analysis of certificate course in "ADVANCED CONTROL STRATEGIES ON ELECTRIC VEHICLES "

Electrical & Electronics Engineering(UG) - (2016-20)

Sl.No	Reg.No	Name	Marks/30
1	NCE16EE001	AARDHRA T V	27
2	NCE16EE002	ABHIJITH S	26
3	NCE16EE003	ABHISHEK P M	24
4	NCE16EE004	ADITHIAN S	22
5	NCE16EE005	ADITHYAN K G	21
6	NCE16EE007	AISWARYA NAIR A	25
7	NCE16EE008	AJAY RAM P NAIR	26
8	NCE16EE009	AJMAL M	26
9	NCE16EE010	AKHIL T R	27
10	NCE16EE011	AKSHAY G	24
11	NCE16EE014	ANNE MARY THOMAS	28
12	NCE16EE015	ARUN K NARAYANAN	26
13	NCE16EE016	ARUN K S	25
14	NCE16EE018	ATHUL B	25
15	NCE16EE019	BAVIN B	26
16	NCE16EE020	BHAVANA V	27
17	NCE16EE021	DONA CLINFARD P	24
18	NCE16EE022	GOPIKA KRISHNAN K	27
19	NCE16EE023	GOPIKA S	26
20	NCE16EE025	KARTHIKA K	28
21	NCE16EE026	KIRAN K NARAYANAN	25
22	NCE16EE027	MEERA M	22
23	NCE16EE028	MEGHA	25
24	NCE16EE031	NAVEEN RAVINDRAN	25
25	NCE16EE032	NITHIN BABU	24
26	NCE16EE033	PRADEEP J	24
27	NCE16EE034	P SRUTHI	26
28	NCE16EE035	RAMADAS K	24
29	NCE16EE036	R HARIKRISHNAN	26
30	NCE16EE037	ROHIT V	25
31	NCE16EE038	SALINI M	27
32	NCE16EE039	SANJANA S	25
33	NCE16EE040	SIDHARTH S MENON	28
34	NCE16EE041	SOORAJ M S	28
35	NCE16EE042	SUSMITHA T M	29
36	NCE16EE043	UJJWAL K MENON	28
37	NCE16EE044	VIKAS V	24
38	NCE16EE045	VIPIN V	25
39	LNCE16EE046	ANIL KR	26
40	LNCE16EE047	CYRIL JOSEPH	26

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Performance Sheet for Certificate Course on "ADVANCED CONTROL STRATEGIES ON ELECTRIC VEHICLES "

Electrical & Electronics Engineering(UG) - (2015-19) Batch

PERFORMANCE ANALYSIS

Reg.No.	Student Name	Marks/30
NCE15EE001	ABHIJIT KRISHNAN A	26
NCE15EE002	ABHIRAM C K	27
NCE15EE003	ABOO FARIS R	28
NCE15EE004	ADITHYA KRISHNA	26
NCE15EE005	AMBILI V	27
NCE15EE006	ANJALI A	25
NCE15EE007	ANJITH R NAIR	24
NCE15EE008	ARJUN A	24
NCE15EE009	ARJUN SASIKUMAR	23
NCE15EE010	ARJUN SURENDRAN	25
NCE15EE011	ARSHIFA A	26
NCE15EE012	ARUN V P	27
NCE15EE013	ARUN MOHAN V	24
NCE15EE014	ASWATHY A	29
NCE15EE015	ATHIRA S	24
NCE15EE016	ATHUL KAMAL R	22
NCE15EE017	BASIL P POULOSE	28
NCE15EE018	BINURAJ C	25
NCE15EE019	DAVIS VARGHESE	AB
NCE15EE020	DEON MOHAMMED	26
NCE15EE021	DIYA R	28
NCE15EE022	GAYATHRI MURALIDHARAN	25
NCE15EE023	GREESHMA K	26
NCE15EE024	HARIKRISHNA P	25
NCE15EE025	HIMA M	27
NCE15EE026	HIMA M M	28
NCE15EE028	JAYAKRISHNAN K	24

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Reg.No.	Student Name	Marks/30
NCE15EE029	KARTHIK R REVI	22
NCE15EE030	KRIPA KRISHNA A	22
NCE15EE031	KRISHNADAS K	28
NCE15EE032	KRISHNAKUMAR P	27
NCE15EE033	LESLY CATHERINE	27
NCE15EE034	MIDUN S	26
NCE15EE035	MOHAMMED IBRAHIM N	26
NCE15EE036	NELSON P O	27
NCE15EE037	NIRMAL PRASAD K	25
NCE15EE038	PARAMESWARAN T K	24
NCE15EE039	PAVAN KRISHNAN K A	25
NCE15EE040	PRAJITHA K NAIR	28
NCE15EE041	PRANAV KUMAR S	26
NCE15EE043	RAJALAKSHMY S	24
NCE15EE044	RESHMA RAJ K	25
NCE15EE045	SAI KRISHNAN	26
NCE15EE046	SANDEEP T C	26
NCE15EE047	SANGEETHA V	26
NCE15EE048	SANJAY S	27
NCE15EE049	SHANILA P	28
NCE15EE050	SHAREEFA P A	27
NCE15EE051	SHILPA MANIKANDAN	28
NCE15EE052	SRUTHI RAMKUMAR	26
NCE15EE053	SUJITH V	25
NCE15EE054	SUSMITHA P	28
NCE15EE055	VISHNU V	25
NCE15EE056	VISHNU MENON P	26
LNCE15EE057	ARAVIND S SANKAR	27
LNCE15EE058	FAISAL P M	25
LNCE15EE060	JOMON GEORGE	26
LNCE15EE061	NIVED M JAYAN	26
LNCE15EE062	RONY C JOSHY	24
LNCE15EE063	SREEJITH V S	29

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CERTIFICATION COURSE EXAM

CERTIFICATION COURSE NAME: Advanced control strategies in control vehicles

28/30

Time: 1 Hr **Marks: 30**

Date: 28-07-2018 **Student Name:** Gopika Krishnan K **Reg. No.:** NCE16EE022

27/30

Department: Electrical And Electronics

1. An electric vehicle equipped with push button start will enter the POWER ON (KOEO) mode, but will not enter the READY TO DRIVE (KOER) mode. No diagnostic trouble codes (DTCs) are stored. The reason is::
(A) the high voltage safety plug is removed.
(B) a failed brake on/off switch.
(C) an empty fuel tank.
(D) A 12 V battery disconnected.

2. A control strategy that can be implemented during the given situation is:
Technician A says that a failed inverter coolant pump could be the cause.
Technician B says that insufficient coolant in the internal combustion engine (ICE) cooling system could be the cause.
Who is right?
(A) A only
(B) B only
(C) Both A and B
(D) Neither A nor B

3. A Type-1 EV will enter READY TO DRIVE (KOER) mode but will not crank the internal combusion engine (ICE). When the vehicle is pushed in NEUTRAL gear range, the engine spins. Which of these could be the cause?
(A) A depleted high voltage battery
(B) A seized MG2
(C) A failed crankshaft position sensor
(D) A seized plenetary gear set

4. During deceleration,of a power train the arrows on the power flow display appear as shown. This indicates:
(A) the engine is running with energy flowing to the drive wheels.
(B) the engine is running and driving the motor/generator to recharge the battery pack.
(C) energy from the battery pack and the engine are blended and flowing to the drive wheels.
(D) energy from the drive wheels is being used to recharge the battery pack.

5. A Type-2 hybrid vehicle with a belt-type continuously variable transmission (CVT) bucks and jerks when accelerating from a stop.
Technician A says that using the wrong type of transmission fluid could be the cause.
Technician B says that a failing split pulley/steel belt could be the cause.
Who is right?
(A) A only (C) Both A and B
(B) B only (D) Neither A nor B

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6. The MIL is illuminated and a "Battery Module Deterioration" diagnostic trouble code (DTC) is stored. The most likely cause is a failed:
(A) high voltage battery.
(B) high voltage inverter.
(C) motor/generator.
(D) DC/DC converter.

7. What purpose does a generator serve in an EV power train?

- It converts nuclear energy into more nuclear energy.
- It converts mechanical energy into electrical energy.
- It converts chemical energy into electrical energy.
- It converts electrical energy into mechanical energy.

8. What are the two main types of electric(hybrid) vehicle?

- The series hybrid vehicle and the mild hybrid vehicle.
- The parallel hybrid vehicle and the full hybrid vehicle.
- The series hybrid vehicle and the parallel hybrid vehicle.
- The full hybrid vehicle and the empty hybrid vehicle.

9. Which sentence best describes a hybrid(parallel)vehicle?

- The engine is directly connected to the transmission.
- The electric motor is directly connected to the transmission.
- Both of the above.
- None of the above.

10. Which of these is a purpose of the power-split device?

- To split electrical energy into mechanical energy.
- To allow both the engine and electric motor to propel the vehicle.
- To recharge the battery while braking.
- To recharge the brakes while driving.

11. Which of the following is NOT the type of Electric Hybrid Vehicle?

a) Plug-in Hybrid EV

b) Parallel Hybrid EV

c) Natural Gas For Vehicles

d) Series Hybrid EV

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12. The Hybrid Electric Vehicle consists of :

a) NGV engine + Gasoline engine

b) IC engine + Gasoline engine

c) Electric motor+ Electric motor

d) IC engine+ Electric motor

13. "In this system, the engine is used to supply electrical power to the motor, which then turns the wheels" Select the type of Hybrid System according to above description.

a). Series Hybrid

b). Parallel Hybrid

c). Plug-in Hybrid

d). Series-parallel Hybrid

14. "The wheels are driven by both the engine and the motor" Select the type of Hybrid System according to above description.

a). Series Hybrid

b). Parallel Hybrid

c). Plug-in Hybrid

d). Series-parallel Hybrid

15. Select the features of Hybrid Electric Vehicles

a).Idle Stop

b).EV Drive

c). Regenerative braking

d). All the above.

16. The electric motor in a hybrid car can also act as :

a).cooling fan
b). fuel pump
c).generator

d). None of the above

17. Regenerative braking involves :

a). Nano fibers that repair the surface of brake pads

b).reducing the amount of friction necessary to slow a car

c). reclaiming heat from the brakes and using it for power

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18. The benefits of a hybrid car include :

a). reducing emissions

b). improving gas mileage

c). high fuel consumption

d). high speed driving

19. A _____ is a Hybrid source

a).Mild Hybrid

b). Full Hybrid

c). Fuel Cell

d). Assist Hybrid

20. A Toyota Prius C Hybrid has ____engine.

a). 1

b). 2

c). half

d). no

21. Select the cycle use in a Hybrid Engine.

a). Otto

b).Diesel

c).Atkinson

d). Isentropic

22. Select the WRONG statement.

a). Toyota produced the Insight Hybrid
b). Hybrid systems rely on very high voltages
c). All of the high voltage cables are covered in orange sleeves for easy identification
d). To test high voltage systems you need a Category 3 (CAT III) digital volt ohmmeter

23. Select the CORRECT statement about Integrated Motor Assist (IMA) hybrid system
a). Produced by Honda
b). This system is the basis for many series parallel hybrid vehicles.
c). This system is capable of instantaneously switching from one power source to another or combining the two.

24. The most common type of hybrid car combines the following:

a). diesel and electric power
b). gas and electric power

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c). biodiesel and electric power

25. In a parallel hybrid:
a). A gas engine runs an electric generator.
b). A gas engine and electric motor can each turn the wheels.
c). The engine has no connection to the transmissions

26. In a series hybrid:

a). An electric motor acts as a backup to a gas engine.
b). A gas engine and an electric motor alternately turn the wheels.
c). A gas engine turns a generator, not the wheels.

27. Small engines are more efficient than large engines because:

a). They weigh less.
b). It takes less fuel to fill the cylinders.
c). both A and B

28. In a Prius, the power split device connects the:

a). gasoline engine, generator and electric motor
b). gasoline engine, electric motor and power train
c). gasoline engine, transmission and brakes

29. You should avoid abrupt stops in a hybrid car because:

a). Hybrids are very sensitive to sudden changes in motion.
b). The engine has more time to collect energy.
c). Repairs to regenerative braking systems are extremely expensive.

30.A control strategy needed for present day EV trains is:

(a) Fast forward control
(b) Closed loop control
(c) Cascade control
(d) Feedback control

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CERTIFICATION COURSE EXAM

27/30

CERTIFICATION COURSE NAME: Advanced control strategies in control vehicles

Time: 1 Hr **Marks: 30**

Date: 28/07/2018 **Student Name:** AKHIL T.R **Reg. No.:** NCE16EE010

Department: Electrical And Electronics

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23. Select the CORRECT statement about Integrated Motor Assist (IMA) hybrid system

a). Produced by Honda
b). This system is the basis for many series parallel hybrid vehicles.
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24. The most common type of hybrid car combines the following:

a). diesel and electric power
b). gas and electric power

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CERTIFICATION COURSE EXAM

CERTIFICATION COURSE NAME: Advanced control strategies in control vehicles 28/30 27/30

Time: 1 Hr **Marks: 30**

Date: 28/7/18 **Student Name:** Salini M **Reg. No.:** NCE16EE038

Department: Electrical And Electronics

1. An electric vehicle equipped with push button start will enter the POWER_ON (KOEO) mode, but will not enter the READY TO DRIVE (KOER) mode. No diagnostic trouble codes (DTCs) are stored. The reason is::
(A) the high voltage safety plug is removed.
(B) a failed brake on/off switch.
(C) an empty fuel tank.
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Technician A says that a failed inverter coolant pump could be the cause.
Technician B says that insufficient coolant in the internal combustion engine (ICE) cooling system could be the cause.
Who is right?
(A) A only
(B) B only
(C) Both A and B
(D) Neither A nor B

3. A Type-1 EV will enter READY TO DRIVE (KOER) mode but will not crank the internal combusion engine (ICE). When the vehicle is pushed in NEUTRAL gear range, the engine spins. Which of these could be the cause?
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5. A Type-2 hybrid vehicle with a belt-type continuously variable transmission (CVT) bucks and jerks when accelerating from a stop.
Technician A says that using the wrong type of transmission fluid could be the cause.
Technician B says that a failing split pulley/steel belt could be the cause.
Who is right?
(A) A only (C) Both A and B
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6. The MIL is illuminated and a "Battery Module Deterioration" diagnostic trouble code (DTC) is stored. The most likely cause is a failed:
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11. Which of the following is NOT the type of Electric Hybrid Vehicle?

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15. Select the features of Hybrid Electric Vehicles

a).Idle Stop

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a). reducing emissions

b). improving gas mileage

c). high fuel consumption

d). high speed driving

19. A FULL HYBRID is a Hybrid source

a).Mild Hybrid

b). Full Hybrid

c). Fuel Cell

d). Assist Hybrid

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a). 1

b). 2

c). half

d). no

21. Select the cycle use in a Hybrid Engine.

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CERTIFICATION COURSE EXAM

26/30

CERTIFICATION COURSE NAME: Advanced control strategies in control vehicles

Time: 1 Hr **Marks: 30**

Date: 15-07-17 **Student Name:** Abithya Krishna **Reg. No.:** NCE15EE004

Department: Electrical And Electronics

1. An electric vehicle equipped with push button start will enter the POWER ON (KOEO) mode, but will not enter the READY TO DRIVE (KOER) mode. No diagnostic trouble codes (DTCs) are stored. The reason is::
(A) the high voltage safety plug is removed.
(B) a failed brake on/off switch.
(C) an empty fuel tank.
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2. A control strategy that can be implemented during the given situation is:
Technician A says that a failed inverter coolant pump could be the cause.
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Who is right?
(A) A only
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3. A Type-1 EV will enter READY TO DRIVE (KOER) mode but will not crank the internal combusion engine (ICE). When the vehicle is pushed in NEUTRAL gear range, the engine spins. Which of these could be the cause?
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(C) energy from the battery pack and the engine are blended and flowing to the drive wheels.
(D) energy from the drive wheels is being used to recharge the battery pack.

5. A Type-2 hybrid vehicle with a belt-type continuously variable transmission (CVT) bucks and jerks when accelerating from a stop.
Technician A says that using the wrong type of transmission fluid could be the cause.
Technician B says that a failing split pulley/steel belt could be the cause.
Who is right?
(A) A only (C) Both A and B
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6. The MIL is illuminated and a "Battery Module Deterioration" diagnostic trouble code (DTC) is stored. The most likely cause is a failed:
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8. What are the two main types of electric(hybrid) vehicle?

- The series hybrid vehicle and the mild hybrid vehicle.
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9. Which sentence best describes a hybrid(parallel)vehicle?

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12. The Hybrid Electric Vehicle consists of :

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18. The benefits of a hybrid car include :

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b). improving gas mileage

c). high fuel consumption

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a).Mild Hybrid

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b). 2
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25/30

CERTIFICATION COURSE EXAM

CERTIFICATION COURSE NAME: Advanced control strategies in control vehicles

Time: 1 Hr **Marks: 30**

Date: 15/07/2017 **Student Name:** HARIKRISHNA P **Reg. No.:** NCE15EE024

Department: Electrical And Electronics

1. An electric vehicle equipped with push button start will enter the POWER ON (KOEO) mode, but will not enter the READY TO DRIVE (KOER) mode. No diagnostic trouble codes (DTCs) are stored. The reason is::
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6. The MIL is illuminated and a "Battery Module Deterioration" diagnostic trouble code (DTC) is stored. The most likely cause is a failed:
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CERTIFICATION COURSE EXAM

25/30

CERTIFICATION COURSE NAME: Advanced control strategies in control vehicles

Time: 1 Hr **Marks: 30**

Date: 15/07/17 **Student Name:** Ashgin S **Reg. No.:** NCE16EE002

Department: Electrical And Electronics

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NEHRU COLLEGE OF ENGINEERING & RESEARCH CENTRE ★ PAMPADY THIRUVILWAMALA THRISSUR DT. 1

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6. The MIL is illuminated and a "Battery Module Deterioration" diagnostic trouble code (DTC) is stored. The most likely cause is a failed:
(A) high voltage battery.
(B) high voltage inverter.
(C) motor/generator.
(D) DC/DC converter.

7. What purpose does a generator serve in an EV power train?

- It converts nuclear energy into more nuclear energy.
- It converts mechanical energy into electrical energy.
- It converts chemical energy into electrical energy.
- It converts electrical energy into mechanical energy.

8. What are the two main types of electric(hybrid) vehicle?

- The series hybrid vehicle and the mild hybrid vehicle.
- The parallel hybrid vehicle and the full hybrid vehicle.
- The series hybrid vehicle and the parallel hybrid vehicle.
- The full hybrid vehicle and the empty hybrid vehicle.

9. Which sentence best describes a hybrid(parallel)vehicle?

- The engine is directly connected to the transmission.
- The electric motor is directly connected to the transmission.
- Both of the above.
- None of the above.

10. Which of these is a purpose of the power-split device?

- To split electrical energy into mechanical energy.
- To allow both the engine and electric motor to propel the vehicle.
- To recharge the battery while braking.
- To recharge the brakes while driving.

11. Which of the following is NOT the type of Electric Hybrid Vehicle?

a) Plug-in Hybrid EV
b) Parallel Hybrid EV
c) Natural Gas For Vehicles
d) Series Hybrid EV

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12. The Hybrid Electric Vehicle consists of :

a) NGV engine + Gasoline engine

b) IC engine + Gasoline engine

c) Electric motor+ Electric motor

d) IC engine+ Electric motor

13. "In this system, the engine is used to supply electrical power to the motor, which then turns the wheels" Select the type of Hybrid System according to above description.

a). Series Hybrid

b). Parallel Hybrid

c). Plug-in Hybrid

d). Series-parallel Hybrid

14. "The wheels are driven by both the engine and the motor" Select the type of Hybrid System according to above description.

a). Series Hybrid

b). Parallel Hybrid

c). Plug-in Hybrid

d). Series-parallel Hybrid

15. Select the features of Hybrid Electric Vehicles

a).Idle Stop

b).EV Drive

c). Regenerative braking

d). All the above.

16. The electric motor in a hybrid car can also act as :

a).cooling fan

b). fuel pump

c).generator

d). None of the above

17. Regenerative braking involves :

a). Nano fibers that repair the surface of brake pads

b).reducing the amount of friction necessary to slow a car

c). reclaiming heat from the brakes and using it for power

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18. The benefits of a hybrid car include :

a). reducing emissions

b). improving gas mileage

c). high fuel consumption

d). high speed driving

19. A _____ is a Hybrid source

a).Mild Hybrid

b). Full Hybrid

c). Fuel Cell

d). Assist Hybrid

20. A Toyota Prius C Hybrid has ____engine.

a). 1
b). 2
c). half

d). no

21. Select the cycle use in a Hybrid Engine.

a). Otto

b).Diesel

c).Atkinson

d). Isentropic

22. Select the WRONG statement.

a). Toyota produced the Insight Hybrid
b). Hybrid systems rely on very high voltages
c). All of the high voltage cables are covered in orange sleeves for easy identification
d). To test high voltage systems you need a Category 3 (CAT III) digital volt ohmmeter

23. Select the CORRECT statement about Integrated Motor Assist (IMA) hybrid system
a). Produced by Honda
b). This system is the basis for many series parallel hybrid vehicles.
c). This system is capable of instantaneously switching from one power source to another or combining the two.

24. The most common type of hybrid car combines the following:

a). diesel and electric power
b). gas and electric power

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c). biodiesel and electric power

25. In a parallel hybrid:
a). A gas engine runs an electric generator.
b). A gas engine and electric motor can each turn the wheels.
c). The engine has no connection to the transmissions

26. In a series hybrid:

a). An electric motor acts as a backup to a gas engine.
b). A gas engine and an electric motor alternately turn the wheels.
c). A gas engine turns a generator, not the wheels.

27. Small engines are more efficient than large engines because:

a). They weigh less.
b). It takes less fuel to fill the cylinders.
c). both A and B

28. In a Prius, the power split device connects the:

a). gasoline engine, generator and electric motor
b). gasoline engine, electric motor and power train
c). gasoline engine, transmission and brakes

29. You should avoid abrupt stops in a hybrid car because:

a). Hybrids are very sensitive to sudden changes in motion.
b). The engine has more time to collect energy.
c). Repairs to regenerative braking systems are extremely expensive.

30.A control strategy needed for present day EV trains is:

(a) Fast forward control
(b) Closed loop control
(c) Cascade control
(d) Feedback control

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ADVANCED CONTROL STRATEGIES ON ELECTRIC VEHICLES

ANSWER KEY

Question No.	Answer	Question No.	Answer
1	d	16	a
2	b	17	c
3	b	18	a
4	c	19	b
5	a	20	b
6	c	21	c
7	c	22	d
8	d	23	a
9	a	24	b
10	b	25	b
11	c	26	c
12	a	27	b
13	c	28	d
14	b	29	a
15	b	30	b

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1	NCE16EE001	AARDHRA T V	P	P	P	P	P	P	P	P	P	P	P	P
2	NCE16EE002	ABHIJITH S	P	P	P	P	P	P	P	P	P	P	P	P
3	NCE16EE003	ABHISHEK P M	P	P	P	P	P	P	P	P	P	P	P	P
4	NCE16EE004	ADITHIAN S	P	P	P	P	P	P	P	P	P	P	P	P
5	NCE16EE005	ADITHYAN K G	P	P	P	P	P	P	P	P	P	P	P	P
6	NCE16EE007	AISWARYA NAIR A	P	P	P	P	P	P	P	P	P	P	P	P
7	NCE16EE008	AJAY RAM P NAIR	P	P	P	P	P	P	P	P	P	P	P	P
8	NCE16EE009	AJMAL M	P	P	P	P	P	P	P	P	P	P	P	P
9	NCE16EE010	AKHIL T R	P	P	P	P	P	P	P	P	P	P	P	P
10	NCE16EE011	AKSHAY G	P	P	P	P	P	P	P	P	P	P	P	P
11	NCE16EE014	ANNE MARY THOMAS	P	P	P	P	P	P	P	P	P	P	P	P
12	NCE16EE015	ARUN K NARAYANAN	P	P	P	P	P	P	P	P	P	P	P	P
13	NCE16EE016	ARUN K S	P	P	P	P	P	P	P	P	P	P	P	P
14	NCE16EE018	ATHUL B	P	P	P	P	P	P	P	P	P	P	P	P
15	NCE16EE019	BAVIN B	P	P	P	P	P	P	P	P	P	P	P	P
16	NCE16EE020	BHAVANA V	P	P	P	P	P	P	P	P	P	P	P	P
17	NCE16EE021	DONA CLINFARD P	P	P	P	P	P	P	P	P	P	P	P	P
18	NCE16EE022	GOPIKA KRISHNAN K	P	P	P	P	P	P	P	P	P	P	P	P
19	NCE16EE023	GOPIKA S	P	P	P	P	P	P	P	P	P	P	P	P
20	NCE16EE025	KARTHIKA K	P	P	P	P	P	P	P	P	P	P	P	P
21	NCE16EE026	MIRAN K NARAYANAN	P	P	P	P	P	P	P	P	P	P	P	P
22	NCE16EE027	MEERA M	P	P	P	P	P	P	P	P	P	P	P	P
23	NCE16EE028	MEGHA	P	P	P	P	P	P	P	P	P	P	P	P

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24	NCE16EE031	NAVEEN RAVINDRAN	P	P	P	P	P	P	P	P	P	P	P	P
25	NCE16EE032	NITHIN BABU	P	P	P	P	P	P	P	P	P	P	P	P
26	NCE16EE033	PRADEEP J	P	P	P	P	P	P	P	P	P	P	P	P
27	NCE16EE034	P SRUTHI	P	P	P	P	P	P	P	P	P	P	P	P
28	NCE16EE035	RAMADAS K	P	P	P	P	P	P	P	P	P	P	P	P
29	NCE16EE036	R HARIKRISHNAN	P	P	P	P	P	P	P	P	P	P	P	P
30	NCE16EE037	ROHIT V	P	P	P	P	P	P	P	P	P	P	P	P
31	NCE16EE038	SALINI M	P	P	P	P	P	P	P	P	P	P	P	P
32	NCE16EE039	SANJANA S	P	P	P	P	P	P	P	P	P	P	P	P
33	NCE16EE040	SIDHARTH S MENON	P	P	P	P	P	P	P	P	P	P	P	P
34	NCE16EE041	SOORAJ M S	P	P	P	P	P	P	P	P	P	P	P	P
35	NCE16EE042	SUSMITHA T M	P	P	P	P	P	P	P	P	P	P	P	P
36	NCE16EE043	UJJWAL K MENON	P	P	P	P	P	P	P	P	P	P	P	P
37	NCE16EE044	VIKAS V	P	P	P	P	P	P	P	P	P	P	P	P
38	NCE16EE045	VIPIN V	P	P	P	P	P	P	P	P	P	P	P	P
39	LNCE16EE04	ANIL KR	P	P	P	P	P	P	P	P	P	P	P	P
40	LNCE16EE04	CYRIL JOSEPH	P	P	P	P	P	P	P	P	P	P	P	P

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NCE15EE001	ABHIJIT KRISHNAN A	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
NCE15EE002	ABHIRAM C K	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
NCE15EE003	ABOO FARIS R	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
NCE15EE004	ADITHYA KRISHNA	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
NCE15EE005	AMRILI V	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
NCE15EE006	ANJALI A	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
NCE15EE007	ANNITH P NAIR	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
NCE15EE008	ARJUN A	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
NCE15EE009	ARJUN SASIKUMAR	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
NCE15EE010	ARJUN SURENDRAN	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
NCE15EE011	ARSHIFA A	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
NCE15EE012	ARUN V P	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
NCE15EE013	ARUN MOHAN V	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
NCE15EE014	ASWATHY A	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

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		FN	AN	FN	AN	FN	AN	FN	AN	FN	AN	FN	AN
NCE15EE015	ATHIRA S	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
NCE15EE016	ATHUL KAMAL R	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
NCE15EE017	BASIL P POULOSE	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
NCE15EE018	BINURAJ C	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
NCE15EE019	DAVIS VARGHESE	A	A	A	A	A	A	A	A	A	A	A	A
NCE15EE020	DEON MOHAMMED	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
NCE15EE021	DIYA R	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
NCE15EE022	GAYATHRI MURALIDHARAN	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
NCE15EE023	GREESHMA K	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
NCE15EE024	HARIKRISHNA P	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
NCE15EE025	HIMA M	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
NCE15EE026	HIMA M M	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
NCE15EE028	JAYAKRISHNAN K	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

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NCE15EE029	KARTHIK R REVI												
NCE15EE030	KRIPA KRISHNA A												
NCE15EE031	KRISHNADAS K												
NCE15EE032	KRISHNAKUMAR P												
NCE15EE033	LESLY CATHERINE												
NCE15EE034	MIDUN S												
NCE15EE035	MOHAMMED IBRAHIM N												
NCE15EE036	NELSON P O												
NCE15EE037	NIRMAL PRASAD K												
NCE15EE038	PARAMESWARAN T K												
NCE15EE039	PAVAN KRISHNAN K A												
NCE15EE040	PRAJITHA K NAIR												
NCE15EE041	PRANAV KUMAR S												
NCE15EE043	RAJALAKSHMY S												
NCE15EE044	RESHMA RAJ K												
NCE15EE045	SAI KRISHNAN												
NCE15EE046	SANDEEP T C												
NCE15EE047	SANGEETHA V												
NCE15EE048	SANJAY S												
NCE15EE049	SHANILA P												

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NCE15EE051	SHILPA MANIKANDAN												
NCE15EE052	SRUTHI RAMKUMAR												
NCE15EE053	SUJITH V												
NCE15EE054	SUSMITHA P												
NCE15EE055	VISHNU V												
NCE15EE056	VISHNU MENON P												
LNCE15EE057	ARAVIND S SANKAR												
LNCE15EE058	FAISAL P M												
LNCE15EE060	JOMON GEORGE												
LNCE15EE061	NIVED M JAYAN												
LNCE15EE062	RONY C JOSHY												
LNCE15EE063	SREEJITH V S												

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Sl.N	Reg.No	Name
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3	NCE16EE003	ABHISHEK P M
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5	NCE16EE005	ADITHYAN K G
6	NCE16EE007	AISWARYA NAIR A
7	NCE16EE008	AJAY RAM P NAIR
8	NCE16EE009	AJMAL M
9	NCE16EE010	AKHIL T R
10	NCE16EE011	AKSHAY G
11	NCE16EE014	ANNE MARY THOMAS
12	NCE16EE015	ARUN K NARAYANAN
13	NCE16EE016	ARUN K S
14	NCE16EE018	ATHUL B
15	NCE16EE019	BAVIN B
16	NCE16EE020	BHAVANA V
17	NCE16EE021	DONA CLINFARD P
18	NCE16EE022	GOPIKA KRISHNAN K
19	NCE16EE023	GOPIKA S
20	NCE16EE025	KARTHIKA K

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21	NCE16EE026	KIRAN K NARAYANAN
22	NCE16EE027	MEERA M
23	NCE16EE028	MEGHA
24	NCE16EE031	NAVEEN RAVINDRAN
25	NCE16EE032	NITHIN BABU
26	NCE16EE033	PRADEEP J
27	NCE16EE034	P SRUTHI
28	NCE16EE035	RAMADAS K
29	NCE16EE036	R HARIKRISHNAN
30	NCE16EE037	ROHIT V
31	NCE16EE038	SALINI M
32	NCE16EE039	SANJANA S
33	NCE16EE040	SIDHARTH S MENON
34	NCE16EE041	SOORAJ M S
35	NCE16EE042	SUSMITHA T M
36	NCE16EE043	UJJWAL K MENON
37	NCE16EE044	VIKAS V
38	NCE16EE045	VIPIN V
39	LNCE16EE046	ANIL KR
40	LNCE16EE047	CYRIL JOSEPH

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NCE15EE002	ABHIRAM C K
NCE15EE003	ABOO FARIS R
NCE15EE004	ADITHYA KRISHNA
NCE15EE005	AMBILI V
NCE15EE006	ANJALI A
NCE15EE007	ANJITH R NAIR
NCE15EE008	ARJUN A
NCE15EE009	ARJUN SASIKUMAR
NCE15EE010	ARJUN SURENDRAN
NCE15EE011	ARSHIFA A
NCE15EE012	ARUN V P
NCE15EE013	ARUN MOHAN V
NCE15EE014	ASWATHY A
NCE15EE015	ATHIRA S
NCE15EE016	ATHUL KAMAL R
NCE15EE017	BASIL P POULOSE
NCE15EE018	BINURAJ C
NCE15EE019	DAVIS VARGHESE
NCE15EE020	DEON MOHAMMED
NCE15EE021	DIYA R
NCE15EE022	GAYATHRI MURALIDHARAN
NCE15EE023	GREESHMA K
NCE15EE024	HARIKRISHNA P
NCE15EE025	HIMA M
NCE15EE026	HIMA M M
NCE15EE028	JAYAKRISHNAN K
NCE15EE029	KARTHIK R REVI
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NCE15EE031	KRISHNADAS K
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NCE15EE035	MOHAMMED IBRAHIM N
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NCE15EE044	RESHMA RAJ K
NCE15EE045	SAI KRISHNAN
NCE15EE046	SANDE[illegible] T C
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NCE15EE049	SHANILA P
NCE15EE050	SHAREEFA P A
NCE15EE051	SHILPA MANIKANDAN
NCE15EE052	SRUTHI RAMKUMAR
NCE15EE053	SUJITH V
NCE15EE054	SUSMITHA P
NCE15EE055	VISHNU V
NCE15EE056	VISHNU MENON P
LNCE15EE057	ARAVIND S SANKAR
LNCE15EE058	FAISAL P M
LNCE15EE060	JOMON GEORGE
LNCE15EE061	NIVED M JAYAN
LNCE15EE062	RONY C JOSHY
LNCE15EE063	SREEJITH V S

Course Coordinator

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ADVANCED CONTROL STRATEGIES ON ELECTRIC VEHICLES

SYLLABUS

Lecture Modules	ADVANCED CONTROL STRATEGIES ON ELECTRIC VEHICLES
1	Introduction to Electric Vehicles
2	Introduction to Control Strategies
3	Significance of Control Strategies
4	Applications of Electric Vehicles
5	Comparison of Control Strategies for Electric Vehicles
6	Future Control Mechanisms for Electric Vehicles

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ELECTRICAL AND ELECTRONICS DEPARTMENT

NOTICE 04.07.2017

Department has decided to conduct a certificate course on on "ADVANCED CONTROL STRATEGIES ON ELECTRIC VEHICLES " from July 10th 2017 to July 15th 2017.The duration of the course will be for a period of 30 hours. The objective of the course is to impart knowledge on latest developments in hybrid and electrical vehicles. This course will act as a key for enhancing know how of students on modern electric vehicles and for future career opportunities in that field.

The 2016-20and 2015-19 batch admissions(UG) of EEE department are eligible for this course. All concerned students should attend the entire course without fail. Attendance is compulsory.

Copy:

1.Department Notice Board

2.Staff advisors(For Information to students)

3.Office file

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FROM,

SUNDARAMOORTHI P& ANOOP KUMAR M.V

ASSISTANT PROFESSOR,

EEE DEPARTMENT,

NCERC,

PAMPADY

TO,

THE PRINCIPAL,(THROUGH HOD)

EEE DEPARTMENT,

NCERC,

PAMPADY

Sir,

SUB: Requisition for conducting a certificate course on" ADVANCED CONTROL STRATEGIES C ELECTRIC VEHICLES"-Reg.

REF: Office circular No: NCERC/3128/F/AC/14/17, dt.04-07-2017

We would like to request your support and permission to conduct a certificate course on "ADVANCED CONTROL STRATEGIES ON ELECTRIC VEHICLES " from July 10th 2017 to July 15th2017.The duration of the course will be for a period of 30 hours. The objective of the course is to impart knowledge on latest developments in hybrid and electrical vehicles. This course will act as a key for enhancing know how of students on modern electric vehicles and for future career opportunities in that field.

The 2016-20and 2015-19 batch admissions(UG) of EEE department are eligible for this course.

So, We kindly request you to provide the permission for doing this certificate course.

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Thank you for your consideration. I look forward for your response soon.

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THIRUVILWAMALA
THRISSUR

PLACE: Pampady

DATE: 05/07/17

Recommended & forwarded

Your's sincerely,

ANOOP KUMAR M.V

SUNDARAMOORTHI P

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PAMPADY, THIRUVILWAMALA, THRISSUR DIST.

MINUTES OF DEPARTMENT ADVISORY COMMITTEE MEETING HELD ON 03/07/2017

A meeting of the Department Advisory Committee (DAC) was held on 03rd July 2017 at 11:00 AM in the chamber of HoD, EEE department.

The following members were present:

1. Prof. D.K Narayanan- HoD(EEE)
2. Mr. Anoop Kumar M.V-Assistant Professor, EEE Dept.
3. Mr. David E-Assistant Professor, EEE Dept.
4. Mr. Rajesh P-Assistant Professor, EEE Dept.
5. Mr. Sundaramoorthi P-Assistant Professor, EEE Dept.

The following decisions were taken:

1. It was decided to conduct a certificate course on "ADVANCED CONTROL STRATEGIES ON ELECTRIC VEHICLES" from 10TH July 2017 to 15TH July 2017 for a period of 30 hours.
2. The course will give an in-depth knowledge about latest control strategies employed in Electric Vehicle(EV) technology.
3. It was decided to provide the course for 2015-19 and 2016-20 batch UG students.
4. Also, it was decided to ensure compulsory attendance and staff advisors should monitor the same.

The meeting came to an end at 11:50 AM.

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CERTIFICATE

This is to Certify that Ms. RAJALAKSHMY S of Electrical and Electronics Engineering Department has successfully completed the Certificate/Addon Course on AUTONOMOUS VEHICLES AND MACHINES from 23/07/2018 to 28/07/2018 at Nehru College of Engineering & Research Centre, Pamapdy.

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Course Coordinator

for HoD
EEE Department

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This is to Certify that Mr.ABOO FARIS R of Electrical and Electronics Engineering Department has successfully completed the Certificate/Addon Course on AUTONOMOUS VEHICLES AND MACHINES from 23/07/2018 to 28/07/2018 at Nehru College of Engineering & Research Centre, Pamapdy.

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This is to Certify that Mr. DAVIS VARGHESE of Electrical and Electronics Engineering Department has successfully completed the Certificate/Addon Course on AUTONOMOUS VEHICLES AND MACHINES from 23/07/2018 to 28/07/2018 at Nehru College of Engineering & Research Centre, Pamapdy.

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CERTIFICATE

This is to Certify that Ms. HIMA M M of Electrical and Electronics Engineering Department has successfully completed the Certificate/Addon Course on AUTONOMOUS VEHICLES AND MACHINES from 23/07/2018 to 28/07/2018 at Nehru College of Engineering & Research Centre, Pamapdy.

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CERTIFICATE

This is to Certify that Mr. MIDUN S of Electrical and Electronics Engineering Department has successfully completed the Certificate/Addon Course on AUTONOMOUS VEHICLES AND MACHINES from 23/07/2018 to 28/07/2018 at Nehru College of Engineering & Research Centre, Pamapdy.

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Performance Sheet for Certificate Course on "AUTONOMOUS VEHICLES AND MACHINES"

Electrical & Electronics Engineering(UG) - (2015-19) Batch

PERFORMANCE ANALYSIS

Reg.No.	Student Name	Marks/30
NCE15EE001	ABHIJIT KRISHNAN A	25
NCE15EE002	ABHIRAM C K	22
NCE15EE003	ABOO FARIS R	22
NCE15EE004	ADITHYA KRISHNA	19
NCE15EE005	AMBILI V	25
NCE15EE006	ANJALI A	24
NCE15EE007	ANJITH R NAIR	20
NCE15EE008	ARJUN A	23
NCE15EE009	ARJUN SASIKUMAR	16
NCE15EE010	ARJUN SURENDRAN	21
NCE15EE011	ARSHIFA A	25
NCE15EE012	ARUN V P	-AB-
NCE15EE013	ARUN MOHAN V	18
NCE15EE014	ASWATHY A	26
NCE15EE015	ATHIRA S	21
NCE15EE016	ATHUL KAMAL R	22
NCE15EE017	BASIL P POULOSE	25
NCE15EE018	BINURAJ C	20
NCE15EE019	DAVIS VARGHESE	24
NCE15EE020	DEON MOHAMMED	16
NCE15EE021	DIYA R	21
NCE15EE022	GAYATHRI MURALIDHARAN	23
NCE15EE023	GREESHMA K	25
NCE15EE024	HARIKRISHNA P	24
NCE15EE025	HIMA M	24
NCE15EE026	HIMA M M	22
NCE15EE028	JAYAKRISHNAN K	20

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Reg.No.	Student Name	Marks/30
NCE15EE029	KARTHIK R REVI	18
NCE15EE030	KRIPA KRISHNA A	20
NCE15EE031	KRISHNADAS K	-a-
NCE15EE032	KRISHNAKUMAR P	24
NCE15EE033	LESLY CATHERINE	19
NCE15EE034	MIDUN S	21
NCE15EE035	MOHAMMED IBRAHIM N	25
NCE15EE036	NELSON P O	22
NCE15EE037	NIRMAL PRASAD K	19
NCE15EE038	PARAMESWARAN T K	25
NCE15EE039	PAVAN KRISHNAN K A	24
NCE15EE040	PRAJITHA K NAIR	21
NCE15EE041	PRANAV KUMAR S	22
NCE15EE043	RAJALAKSHMY S	20
NCE15EE044	RESHMA RAJ K	17
NCE15EE045	SAI KRISHNAN	22
NCE15EE046	SANDEEP T C	20
NCE15EE047	SANGEETHA V	25
NCE15EE048	SANJAY S	18
NCE15EE049	SHANILA P	24
NCE15EE050	SHAREEFA P A	20
NCE15EE051	SHILPA MANIKANDAN	20
NCE15EE052	SRUTHI RAMKUMAR	21
NCE15EE053	SUJITH V	24
NCE15EE054	SUSMITHA P	26
NCE15EE055	VISHNU V	-a-
NCE15EE056	VISHNU MENON P	21
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LNCE15EE058	FAISAL P M	20
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LNCE15EE061	NIVED M JAYAN	22
LNCE15EE062	RONY C JOSHY	23
LNCE15EE063	SREEJITH V S	19

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CERTIFICATION COURSE EXAM

CERTIFICATION COURSE NAME: Autonomous Vehicles And Machines

Time: 1 Hr **Marks: 30**

Date: 28/07/2018 **Student Name:** Sreejith V S **RegNo.:** LNCE15EE063

19/30

Department: Electrical And Electronics

1. An electric vehicle equipped with a separate pump driven inverter cooling system has a diagnostic trouble code (DTC) for inverter overheating. The coolant is at the "full" level in the inverter coolant reservoir tank.
Technician A says that a failed inverter coolant pump could be the cause.
Technician B says that insufficient coolant in the internal combustion engine (ICE) cooling system could be the cause.
Who is right?
(A) A only
(B) B only
(C) Both A and B
(D) Neither A nor B

2. A Type-1 hybrid vehicle will enter READY TO DRIVE (KOER) mode but will not crank the internal combusion engine (ICE). When the vehicle is pushed in NEUTRAL gear range, the engine spins. Which of these could be the cause?
(A) A depleted high voltage battery
(B) A seized MG2
(C) A failed crankshaft position sensor
(D) A seized plenetary gear set

3. During deceleration, the arrows on the power flow display appear as shown. This indicates:
(A) the engine is running with energy flowing to the drive wheels.
(B) the engine is running and driving the motor/generator to recharge the battery pack.
(C) energy from the battery pack and the engine are blended and flowing to the drive wheels.
(D) energy from the drive wheels is being used to recharge the battery pack.

4. A Type-2 hybrid vehicle with a belt-type continuously variable transmission (CVT) bucks and jerks when accelerating from a stop.
Technician A says that using the wrong type of transmission fluid could be the cause.
Technician B says that a failing split pulley/steel belt could be the cause.
Who is right?
A) A only (C) Both A and B
(B) B only (D) Neither A nor B

5. A Electric vehicle equipped with push button start will enter the POWER ON mode, but will not enter the READY TO DRIVE mode. No diagnostic trouble codes (DTCs) are stored. This could be caused by:
(A) The high voltage safety plug is removed.
(B) a failed brake on/off switch.
(C) an empty fuel tank.
(D) A 12 V battery which is disconnected

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6. A Type-2 hybrid vehicle with a belt-type continuously variable transmission (CVT) buc
and jerks when accelerating from a stop.
Technician A says that using the wrong type of transmission fluid could be the cause.
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7. The MIL is illuminated and a "Battery Module Deterioration" diagnostic trouble code (DTC) is stored. The most likely cause is a failed:
(A) high voltage battery.
(B) high voltage inverter.
(C) motor/generator.
(D) DC/DC converter.

8. What purpose does a generator serve in a hybrid vehicle?

- It converts nuclear energy into more nuclear energy.
- It converts mechanical energy into electrical energy.
- It converts chemical energy into electrical energy.
- It converts electrical energy into mechanical energy.

9. What are the two main types of hybrid vehicle?

- The series hybrid vehicle and the mild hybrid vehicle.
- The parallel hybrid vehicle and the full hybrid vehicle.
- The series hybrid vehicle and the parallel hybrid vehicle.
- The full hybrid vehicle and the empty hybrid vehicle.

10. Which sentence best describes a parallel hybrid vehicle?

- The engine is directly connected to the transmission.
- The electric motor is directly connected to the transmission.
- Both of the above.
- None of the above.

11. Which of these is a purpose of the power-split device?

- To split electrical energy into mechanical energy.
- To allow both the engine and electric motor to propel the vehicle.
- To recharge the battery while braking.
- To recharge the brakes while driving.

12. which of the following is NOT the type of Hybrid Vehicle?

a) Plug-in Hybrid
b) Parallel Hybrid
c) Natural Gas For Vehicles
d) Series Hybrid

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13. The Hybrid Electric Vehicle consists of :

a) NGV engine + Gasoline engine

b) IC engine + Gasoline engine

c) Electric motor+ Electric motor

d) IC engine+ Electric motor

14. "In this system, the engine is used to supply electrical power to the motor, which then turns the wheels" Select the type of Hybrid System according to above description.

a). Series Hybrid

b). Parallel Hybrid

c). Plug-in Hybrid

d). Series-parallel Hybrid

15. The benefits of a hybrid car include :

a). reducing emissions

a). improving gas mileage

c). high fuel consumption

d). high speed driving

16. A _____ is a Hybrid source

a).Mild Hybrid

b). Full Hybrid

c). Fuel Cell

d). Assist Hybrid

17. A Toyota Prius C Hybrid has ____engine.

a). 1
b). 2
c). half

d). no

18. Select the cycle use in a Hybrid Engine.

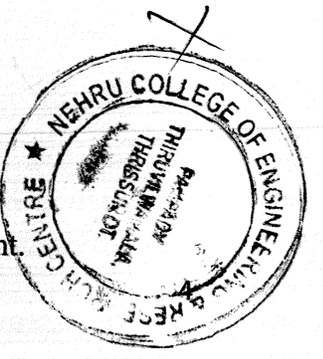
a). Otto

b).Diesel

c).Atkinson

d). Isentropic

19. Select the WRONG statement.



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a). Toyota produced the Insight Hybrid
b). Hybrid systems rely on very high voltages
c). All of the high voltage cables are covered in orange sleeves for easy identification
d). To test high voltage systems you need a Category 3 (CAT III) digital volt ohmmeter

20. Select the CORRECT statement about Integrated Motor Assist (IMA) hybrid system
a). Produced by Honda
b). This system is the basis for many series parallel hybrid vehicles.
c). This system is capable of instantaneously switching from one power source to another or combining the two.

21. The most common type of hybrid car combines the following:
a). diesel and electric power
b). gas and electric power

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c). biodiesel and electric power

22. In a parallel hybrid:
a). A gas engine runs an electric generator.
b). A gas engine and electric motor can each turn the wheels. c). The engine has no connection to the transmissions

23. In a series hybrid:

a). An electric motor acts as a backup to a gas engine.
b). A gas engine and an electric motor alternately turn the wheels. c). A gas engine turns a generator, not the wheels.

24. Small engines are more efficient than large engines because: a). They weigh less.
b). It takes less fuel to fill the cylinders.
c). both A and B

25. In a Prius, the power split device connects the:

a). gasoline engine, generator and electric motor
b). gasoline engine, electric motor and power train c). gasoline engine, transmission and brakes

26. You should avoid abrupt stops in a hybrid car because:

a). Hybrids are very sensitive to sudden changes in motion. b). The engine has more time to collect energy.
c). Repairs to regenerative braking systems are extremely expensive.

27. "The wheels are driven by both the engine and the motor" Select the type of Hybrid System according to above description.

a). Series Hybrid b). Parallel Hybrid c). Plug-in Hybrid

d). Series-parallel Hybrid

28. Select the features of Hybrid Electric Vehicles a).Idle Stop

b).EV Drive

c). Regenerative braking d). All the above.

29. The electric motor in a hybrid car can also act as

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a).cooling fan b). fuel pump
c).generator

d). None of the above

30. Regenerative braking involves :

b). Nano fibers that repair the surface of brake pads

b).reducing the amount of friction necessary to slow a car c). reclaiming heat from the brakes and using it for power

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CERTIFICATION COURSE EXAM
CERTIFICATION COURSE NAME: Autonomous Vehicles And Machines
Time: 1 Hr **Marks: 30**
Date: 28/07/2018 **Student Name:** ANJITH R NAIR **RegNo.:** NCE15EE007

Department: Electrical And Electronics

20/30

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13. The Hybrid Electric Vehicle consists of :

a) NGV engine + Gasoline engine

b) IC engine + Gasoline engine

c) Electric motor+ Electric motor

d) IC engine+ Electric motor

14. "In this system, the engine is used to supply electrical power to the motor, which then turns the wheels" Select the type of Hybrid System according to above description.

a). Series Hybrid

b). Parallel Hybrid

c). Plug-in Hybrid

d). Series-parallel Hybrid

15. The benefits of a hybrid car include :

a). reducing emissions

a). improving gas mileage

c). high fuel consumption

d). high speed driving

16. A _____ is a Hybrid source

a).Mild Hybrid

b). Full Hybrid

c). Fuel Cell

d). Assist Hybrid

17. A Toyota Prius C Hybrid has ____engine.

a). 1
b). 2
c). half

d). no

18. Select the cycle use in a Hybrid Engine.

a). Otto

b).Diesel

c).Atkinson

d). Isentropic

19. Select the WRONG statement.

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a). Toyota produced the Insight Hybrid
b). Hybrid systems rely on very high voltages
c). All of the high voltage cables are covered in orange sleeves for easy identification
d). To test high voltage systems you need a Category 3 (CAT III) digital volt ohmmeter

20. Select the CORRECT statement about Integrated Motor Assist (IMA) hybrid system
a). Produced by Honda
b). This system is the basis for many series parallel hybrid vehicles.
c). This system is capable of instantaneously switching from one power source to another or combining the two.

21. The most common type of hybrid car combines the following:
a). diesel and electric power
b). gas and electric power

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c). biodiesel and electric power

22. In a parallel hybrid:
a). A gas engine runs an electric generator.
b). A gas engine and electric motor can each turn the wheels. c). The engine has no connection to the transmissions

23. In a series hybrid:

a). An electric motor acts as a backup to a gas engine.
b). A gas engine and an electric motor alternately turn the wheels. c). A gas engine turns a generator, not the wheels.

24. Small engines are more efficient than large engines

because: a). They weigh less.
b). It takes less fuel to fill the cylinders.
c). both A and B

25. In a Prius, the power split device connects the:

a). gasoline engine, generator and electric motor
b). gasoline engine, electric motor and power train c). gasoline engine, transmission and brakes

26. You should avoid abrupt stops in a hybrid car because:

a). Hybrids are very sensitive to sudden changes in motion. b). The engine has more time to collect energy.
c). Repairs to regenerative braking systems are extremely expensive.

27. "The wheels are driven by both the engine and the motor" Select the type of Hybrid System according to above description.

a). Series Hybrid b). Parallel

Hybrid c). Plug-in Hybrid

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28. Select the features of Hybrid Electric

Vehicles a).Idle Stop

b).EV Drive

c). Regenerative braking d). All the

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29. The electric motor in a hybrid car can also act as :

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a).cooling fan b). fuel pump
c).generator

d). None of the above

30. Regenerative braking involves :

b) Nano fibers that repair the surface of brake pads

b).reducing the amount of friction necessary to slow a car c). reclaiming heat from the brakes and using it for power

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Since 1968

CERTIFICATION COURSE EXAM

CERTIFICATION COURSE NAME: Autonomous Vehicles And Machines

Time: 1 Hr **Marks: 30**

Date: 28/07/2018 **Student Name:** HARIKRISHNA P **RegNo.:** NCE15EE024

24/30

Department: Electrical And Electronics

1. An electric vehicle equipped with a separate pump driven inverter cooling system has a diagnostic trouble code (DTC) for inverter overheating. The coolant is at the "full" level in the inverter coolant reservoir tank.
Technician A says that a failed inverter coolant pump could be the cause.
Technician B says that insufficient coolant in the internal combustion engine (ICE) cooling system could be the cause.
Who is right?
(A) A only
(B) B only
(C) Both A and B
(D) Neither A nor B

2. A Type-1 hybrid vehicle will enter READY TO DRIVE (KOER) mode but will not crank the internal combusion engine (ICE). When the vehicle is pushed in NEUTRAL gear range the engine spins. Which of these could be the cause?
(A) A depleted high voltage battery
(B) A seized MG2
(C) A failed crankshaft position sensor
(D) A seized plenetary gear set

3. During deceleration, the arrows on the power flow display appear as shown. This indicates:
(A) the engine is running with energy flowing to the drive wheels.
(B) the engine is running and driving the motor/generator to recharge the battery pack.
(C) energy from the battery pack and the engine are blended and flowing to the drive wheels.
(D) energy from the drive wheels is being used to recharge the battery pack.

4. A Type-2 hybrid vehicle with a belt-type continuously variable transmission (CVT) bucks and jerks when accelerating from a stop.
Technician A says that using the wrong type of transmission fluid could be the cause.
Technician B says that a failing split pulley/steel belt could be the cause.
Who is right?
A) A only (C) Both A and B
(B) B only (D) Neither A nor B

5. A Electric vehicle equipped with push button start will enter the POWER ON mode, but will not enter the READY TO DRIVE mode. No diagnostic trouble codes (DTCs) are stored. This could be caused by:
(A) The high voltage safety plug is removed.
(B) a failed brake on/off switch.
(C) an empty fuel tank.
(D) A 12 V battery which is disconnected

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6. A Type-2 hybrid vehicle with a belt-type continuously variable transmission (CVT) bucks and jerks when accelerating from a stop.
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7. The MIL is illuminated and a "Battery Module Deterioration" diagnostic trouble code (DTC) is stored. The most likely cause is a failed:
(A) high voltage battery.
(B) high voltage inverter.
(C) motor/generator.
(D) DC/DC converter.

8. What purpose does a generator serve in a hybrid vehicle?

- It converts nuclear energy into more nuclear energy.
- It converts mechanical energy into electrical energy.
- It converts chemical energy into electrical energy.
- It converts electrical energy into mechanical energy.

9. What are the two main types of hybrid vehicle?

- The series hybrid vehicle and the mild hybrid vehicle.
- The parallel hybrid vehicle and the full hybrid vehicle.
- The series hybrid vehicle and the parallel hybrid vehicle.
- The full hybrid vehicle and the empty hybrid vehicle.

10. Which sentence best describes a parallel hybrid vehicle?

- The engine is directly connected to the transmission.
- The electric motor is directly connected to the transmission.
- Both of the above.
- None of the above.

11. Which of these is a purpose of the power-split device?

- To split electrical energy into mechanical energy.
- To allow both the engine and electric motor to propel the vehicle.
- To recharge the battery while braking.
- To recharge the brakes while driving.

12. which of the following is NOT the type of Hybrid Vehicle?

a) Plug-in Hybrid

b) Parallel Hybrid

c) Natural Gas For Vehicles

d) Series Hybrid

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AUTONOMOUS VEHICLES AND MACHINES

ANSWER KEY

Question No.	Answer	Question No.	Answer
1	a	16	c
2	a	17	b
3	b	18	a
4	c	19	a
5	d	20	b
6	a	21	b
7	c	22	d
8	a	23	d
9	b	24	c
10	c	25	a
11	d	26	a
12	d	27	b
13	b	28	c
14	d	29	a
15	b	30	c

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Attendance Sheet for Certificate Course on "AUTONOMOUS VEHICLES AND MACHINES"

Electrical & Electronics Engineering(UG) - (2015-19) Batch

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		FN	AN	FN	AN	FN	AN	FN	AN	FN	AN	FN	AN
NCE15EE001	ABHIJIT KRISHNAN A	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
NCE15EE002	ABHIRAM C K	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
NCE15EE003	ABOO FARIS R	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
NCE15EE004	ADITHYA KRISHNA	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
NCE15EE005	AMBILI V	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
NCE15EE006	ANJALI A	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
NCE15EE007	ANJITH R NAIR	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
NCE15EE008	ARJUN A	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
NCE15EE009	ARJUN SASIKUMAR	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
NCE15EE010	ARJUN SURENDRAN	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
NCE15EE011	ARSHIFA A	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
NCE15EE012	ARUN V P	a	a	a	a	a	a	a	a	a	a	a	a
NCE15EE013	ARUN MOHAN V	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
NCE15EE014	ASWATHY A	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
NCE15EE015	ATHIRA S	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
NCE15EE016	ATHUL KAMAL R	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
NCE15EE017	BASIL P POULOSE	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
NCE15EE018	BINURAJ C	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
NCE15EE019	DAVIS VARGHESE	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
NCE15EE020	DEON MOHAMMED	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
NCE15EE021	DIYA R	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
NCE15EE022	GAYATHRI MURALIDHARAN	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
NCE15EE023	GREESHMA K	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
NCE15EE024	HARIKRISHNA P	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
NCE15EE025	HIMA M	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
NCE15EE026	HIMA M M	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
NCE15EE028	JAYAKRISHNAN K	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

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		FN	AN	FN	AN	FN	AN	FN	AN	FN	AN	FN	AN
NCE15EE029	KARTHIK R REVI	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
NCE15EE030	KRIPA KRISHNA A	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
NCE15EE031	KRISHNADAS K	a	a	a	a	a	a	a	a	a	a	a	a
NCE15EE032	KRISHNAKUMAR P	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
NCE15EE033	LESLY CATHERINE	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
NCE15EE034	MIDUN S	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
NCE15EE035	MOHAMMED IBRAHIM N	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
NCE15EE036	NELSON P O	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
NCE15EE037	NIRMAL PRASAD K	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
NCE15EE038	PARAMESWARAN T K	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
NCE15EE039	PAVAN KRISHNAN K A	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
NCE15EE040	PRAJITHA K NAIR	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
NCE15EE041	PRANAV KUMAR S	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
NCE15EE043	RAJALAKSHMY S	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
NCE15EE044	RESHMA RAJ K	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
NCE15EE045	SAI KRISHNAN	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
NCE15EE046	SANDEEP T C	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
NCE15EE047	SANGEETHA V	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
NCE15EE048	SANJAY S	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
NCE15EE049	SHANILA P	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
NCE15EE050	SHAREEFA P A	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
NCE15EE051	SHILPA MANIKANDAN	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
NCE15EE052	SRUTHI RAMKUMAR	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
NCE15EE053	SUJITH V	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
NCE15EE054	SUSMITHA P	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
NCE15EE055	VISHNU V	a	a	a	a	a	a	a	a	a	a	a	a
NCE15EE056	VISHNU MENON P	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
LNCE15EE057	ARAVIND S SANKAR	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
LNCE15EE058	FAISAL P M	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
LNCE15EE060	JOMON GEORGE	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
LNCE15EE061	NIVED M JAYAN	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
LNCE15EE062	RONY C JOSHY	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
LNCE15EE063	SREEJITH V S	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

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Certificate Course on "AUTONOMOUS VEHICLES AND MACHINES"

Electrical & Electronics Engineering(UG) - (2015-19) Batch

ENROLLMENT LIST

Reg.No.	Student Name
NCE15EE001	ABHIJIT KRISHNAN A
NCE15EE002	ABHIRAM C K
NCE15EE003	ABOO FARIS R
NCE15EE004	ADITHYA KRISHNA
NCE15EE005	AMBILI V
NCE15EE006	ANJALI A
NCE15EE007	ANJITH R NAIR
NCE15EE008	ARJUN A
NCE15EE009	ARJUN SASIKUMAR
NCE15EE010	ARJUN SURENDRAN
NCE15EE011	ARSHIFA A
NCE15EE012	ARUN V P
NCE15EE013	ARUN MOHAN V
NCE15EE014	ASWATHY A
NCE15EE015	ATHIRA S
NCE15EE016	ATHUL KAMAL R
NCE15EE017	BASIL P POULOSE
NCE15EE018	BINURAJ C
NCE15EE019	DAVIS VARGHESE
NCE15EE020	DEON MOHAMMED
NCE15EE021	DIYA R
NCE15EE022	GAYATHRI MURALIDHARAN
NCE15EE023	GREESHMA K
NCE15EE024	HARIKRISHNA P
NCE15EE025	HIMA M
NCE15EE026	HIMA M M
NCE15EE028	JAYAKRISHNAN K

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ENROLLMENT LIST

NCE15EE029	KARTHIK R REVI
NCE15EE030	KRIPA KRISHNA A
NCE15EE031	KRISHNADAS K
NCE15EE032	KRISHNAKUMAR P
NCE15EE033	LESLY CATHERINE
NCE15EE034	MIDUN S
NCE15EE035	MOHAMMED IBRAHIM N
NCE15EE036	NELSON P O
NCE15EE037	NIRMAL PRASAD K
NCE15EE038	PARAMESWARAN T K
NCE15EE039	PAVAN KRISHNAN K A
NCE15EE040	PRAJITHA K NAIR
NCE15EE041	PRANAV KUMAR S
NCE15EE043	RAJALAKSHMY S
NCE15EE044	RESHMA RAJ K
NCE15EE045	SAI KRISHNAN
NCE15EE046	SANDEEP T C
NCE15EE047	SANGEETHA V
NCE15EE048	SANJAY S
NCE15EE049	SHANILA P
NCE15EE050	SHAREEFA P A
NCE15EE051	SHILPA MANIKANDAN
NCE15EE052	SRUTHI RAMKUMAR
NCE15EE053	SUJITH V
NCE15EE054	SUSMITHA P
NCE15EE055	VISHNU V
NCE15EE056	VISHNU MENON P
LNCE15EE057	ARAVIND S SANKAR
LNCE15EE058	FAISAL P M
LNCE15EE060	JOMON GEORGE
LNCE15EE061	NIVED M JAYAN
LNCE15EE062	RONY C JOSHY
LNCE15EE063	SREEJITH V S

Course Coordinator

HoD

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ELECTRICAL AND ELECTRONICS DEPARTMENT

NOTICE 16.07.2018

Department has decided to conduct a certificate course on on "AUTONOMOUS VEHICLES AND MACHINES " from July 23rd 2018 to July 28th 2018.The duration of the course will be for a period of 30 hours. The objective of the course is to impart knowledge on latest developments in autonomous vehicles and machines. This course will act as a key for enhancing know how of students on autonomous vehicles and machines and for future career opportunities in that field.

The 2015-19 batch admission(UG) of EEE department are eligible for this course. All concerned students should attend the entire course without fail. Attendance is compulsory.

Copy:

1.Department Notice Board

2.Staff advisors(For Information to students)

3.Office file

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AUTONOMOUS VEHICLES AND MACHINES

SYLLABUS

Lecture Modules	AUTONOMOUS VEHICLES AND MACHINES
1	Introduction to Autonomous Vehicles-And Machines
2	Working of Autonomous Vehicles
3	Basic Architecture of Autonomous Vehicles and Analysis of Series Drive Train
4	Applications of Autonomous Vehicles
5	DC-AC Inverter for Autonomous vehicles
6	Optimization for Autonomous vehicles

Course Coordinator

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FROM,

SUNDARAMOORTHI P,

ASSISTANT PROFESSOR,

EEE DEPARTMENT,

NCERC,

PAMPADY

TO,

THE PRINCIPAL,(THROUGH HOD)

EEE DEPARTMENT,

NCERC,

PAMPADY

Sir,

SUB: Requisition for conducting a certificate course on" AUTONOMOUS VEHICLES AND MACHINES "-Reg.

REF: Office circular No. NCERC/3128/F/AC/32/18 dt.16-07-2018

I would like to request your support and permission to conduct a certificate course on "AUTONOMOUS VEHICLES AND MACHINES " from July 23rd 2018 to July 28th 2018.The duration of the course will be for a period of 30 hours. The objective of the course is to impart knowledge on latest developments in autonomous vehicles and machines. This course will act as a key for enhancing know how of students on autonomous vehicles and machines and for future career opportunities in that field.

The 2015-19 batch admission(UG) of EEE department are eligible for this course.

So, I kindly request you to provide the permission for doing this certificate course.

Thank you for your consideration. I look forward for your response soon.

PARU COLLEGE OF ENGG. NEAR CENTRE Pampady

DATE: 17/07/18

Recommended & Forwarded

P. Sundaramoorthi

Your's sincerely,

SUNDARAMOORTHI P

P. Sundaramoorthi

PRINCIPAL

Nehru College of Engineering and Research Centre

Pampady, Thiruvilwamala, Thrissur Dt

17-18

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CERTIFICATE

This is to Certify that Ms. DONA CLIFARD P of Electrical and Electronics Engineering Department has successfully completed the Certificate/Addon Course on HYBRID AND ELECTRICAL VEHICLE TECHNOLOGY from 23/07/2018 to 28/07/2018 at Nehru College of Engineering & Research Centre, Pamapdy.

Course Coordinator

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EEE Department

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This is to Certify that Ms. KARTHIKA K of Electrical and Electronics Engineering Department has successfully completed the Certificate/Addon Course on HYBRID AND ELECTRICAL VEHICLE TECHNOLOGY from 23/07/2018 to 28/07/2018 at Nehru College of Engineering & Research Centre, Pamapdy.

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This is to Certify that Mr. NITHIN BABU of Electrical and Electronics Engineering Department has successfully completed the Certificate/Addon Course on HYBRID AND ELECTRICAL VEHICLE TECHNOLOGY from 23/07/2018 to 28/07/2018 at Nehru College of Engineering & Research Centre, Pamapdy.

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CERTIFICATE

This is to Certify that Mr. ABHISHEK P M of Electrical and Electronics Engineering Department has successfully completed the Certificate/Addon Course on HYBRID AND ELECTRICAL VEHICLE TECHNOLOGY from 23/07/2018 to 28/07/2018 at Nehru College of Engineering & Research Centre, Pamapdy.

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CERTIFICATE

This is to Certify that Mr. BAVIN B of Electrical and Electronics Engineering Department has successfully completed the Certificate/Addon Course on HYBRID AND ELECTRICAL VEHICLE TECHNOLOGY from 23/07/2018 to 28/07/2018 at Nehru College of Engineering & Research Centre, Pamapdy.

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Performance Sheet for Certificate Course on "HYBRID AND ELECTRICAL VEHICLE TECHNOLOGY "

Electrical & Electronics Engineering(UG) - (2016-20) Batch

PERFORMANCE ANALYSIS

Sl.No	Reg.No	Name	Marks/30
1	NCE16EE001	AARDHRA T V	24
2	NCE16EE002	ABHIJITH S	26
3	NCE16EE003	ABHISHEK P M	24
4	NCE16EE004	ADITHIAN S	23
5	NCE16EE005	ADITHYAN K G	20
6	NCE16EE007	AISWARYA NAIR A	24
7	NCE16EE008	AJAY RAM P NAIR	24
8	NCE16EE009	AJMAL M	25
9	NCE16EE010	AKHIL T R	27
10	NCE16EE011	AKSHAY G	25
11	NCE16EE014	ANNE MARY THOMAS	26
12	NCE16EE015	ARUN K NARAYANAN	24
13	NCE16EE016	ARUN K S	24
14	NCE16EE018	ATHUL B	24
15	NCE16EE019	BAVIN B	25
16	NCE16EE020	BHAVANA V	27
17	NCE16EE021	DONA CLINFARD P	26
18	NCE16EE022	GOPIKA KRISHNAN K	28
19	NCE16EE023	GOPIKA S	26
20	NCE16EE025	KARTHIKA K	27
21	NCE16EE026	KIRAN K NARAYANAN	25

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Sl.No	Reg.No	Name	Marks/30
22	NCE16EE027	MEERA M	23
23	NCE16EE028	MEGHA G	21
24	NCE16EE031	NAVEEN RAVINDRAN	22
25	NCE16EE032	NITHIN BABU	23
26	NCE16EE033	PRADEEP J	22
27	NCE16EE034	P SRUTHI	27
28	NCE16EE035	RAMADAS K	26
29	NCE16EE036	R HARIKRISHNAN	26
30	NCE16EE037	ROHIT V	23
31	NCE16EE038	SALINI M	28
32	NCE16EE039	SANJANA S	24
33	NCE16EE040	SIDHARTH S MENON	27
34	NCE16EE041	SOORAJ M S	29
35	NCE16EE042	SUSMITHA T M	29
36	NCE16EE043	UJJWAL K MENON	28
37	NCE16EE044	VIKAS V	25
38	NCE16EE045	VIPIN V	25
39	LNCE16EE046	ANIL KR	26
40	LNCE16EE047	CYRIL JOSEPH	24

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27/30

CERTIFICATION COURSE EXAM

CERTIFICATION COURSE NAME: Hybrid and Electric Vehicle Technology

Time: 1 Hr **Marks: 30**

Date: 28-07-2018 **Student Name:** Bhavana. V **Reg. No.:** NCE16EEE020

Department:

1. A hybrid vehicle equipped with push button start will enter the POWER ON (KOEO) mode, but will not enter the READY TO DRIVE (KOER) mode. No diagnostic trouble codes (DTCs) are stored. This could be caused by:
(A) the high voltage safety plug is removed.
(B) a failed brake on/off switch.
(C) an empty fuel tank.
(D) a disconnected 12 V battery.

2. A hybrid vehicle equipped with a separate pump driven inverter cooling system has a diagnostic trouble code (DTC) for inverter overheating. The coolant is at the "full" level in the inverter coolant reservoir tank.
Technician A says that a failed inverter coolant pump could be the cause.
Technician B says that insufficient coolant in the internal combustion engine (ICE) cooling system could be the cause.
Who is right?
(A) A only
(B) B only

(C) Both A and B
(D) Neither A nor B

3. A Type-1 hybrid vehicle will enter READY TO DRIVE (KOER) mode but will not crank the internal combusion engine (ICE). When the vehicle is pushed in NEUTRAL gear range, the engine spins. Which of these could be the cause?
(A) A depleted high voltage battery
(B) A seized MG2
(C) A failed crankshaft position sensor
(D) A seized plenetary gear set

4. During deceleration, the arrows on the power flow display appear as shown. This indicates:
(A) the engine is running with energy flowing to the drive wheels.
(B) the engine is running and driving the motor/generator to recharge the battery pack.
(C) energy from the battery pack and the engine are blended and flowing to the drive wheels.
(D) energy from the drive wheels is being used to recharge the battery pack.

5. A Type-2 hybrid vehicle with a belt-type continuously variable transmission (CVT) bucks and jerks when accelerating from a stop.
Technician A says that using the wrong type of transmission fluid could be the cause.
Technician B says that a failing split pulley/steel belt could be the cause.
Who is right?
A) A only (C) Both A and B
(B) B only (D) Neither A nor B

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6. The MIL is illuminated and a "Battery Module Deterioration" diagnostic trouble code (DTC) is stored. The most likely cause is a failed:
(A) high voltage battery.
(B) high voltage inverter.
(C) motor/generator.
(D) DC/DC converter.

7. What purpose does a generator serve in a hybrid vehicle?

- It converts nuclear energy into more nuclear energy.
- It converts mechanical energy into electrical energy.
- It converts chemical energy into electrical energy.
- It converts electrical energy into mechanical energy.

8. What are the two main types of hybrid vehicle?

- The series hybrid vehicle and the mild hybrid vehicle.
- The parallel hybrid vehicle and the full hybrid vehicle.
- The series hybrid vehicle and the parallel hybrid vehicle.
- The full hybrid vehicle and the empty hybrid vehicle.

9. Which sentence best describes a parallel hybrid vehicle?

- The engine is directly connected to the transmission.
- The electric motor is directly connected to the transmission.
- Both of the above.
- None of the above.

10. Which of these is a purpose of the power-split device?

- To split electrical energy into mechanical energy.
- To allow both the engine and electric motor to propel the vehicle.
- To recharge the battery while braking.
- To recharge the brakes while driving.

11. which of the following is NOT the type of Hybrid Vehicle?

a) Plug-in Hybrid

b) Parallel Hybrid

c) Natural Gas For Vehicles

d) Series Hybrid

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12. The Hybrid Electric Vehicle consists of :

a) NGV engine + Gasoline engine

b) IC engine + Gasoline engine

c) Electric motor+ Electric motor

d) IC engine+ Electric motor

13. "In this system, the engine is used to supply electrical power to the motor, which then turns the wheels" Select the type of Hybrid System according to above description.

a). Series Hybrid

b). Parallel Hybrid

c). Plug-in Hybrid

d). Series-parallel Hybrid

14. "The wheels are driven by both the engine and the motor" Select the type of Hybrid System according to above description.

a). Series Hybrid

b). Parallel Hybrid

c). Plug-in Hybrid

d). Series-parallel Hybrid

15. Select the features of Hybrid Electric Vehicles

a).Idle Stop

b).EV Drive

c). Regenerative braking

d). All the above.

16. The electric motor in a hybrid car can also act as :

a).cooling fan
b). fuel pump
c).generator

d). None of the above

17. Regenerative braking involves :

a). Nano fibers that repair the surface of brake pads

b).reducing the amount of friction necessary to slow a car

c). reclaiming heat from the brakes and using it for power

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18. The benefits of a hybrid car include :

a). reducing emissions

b). improving gas mileage

c). high fuel consumption

d). high speed driving

19. A _____ is a Hybrid source

a).Mild Hybrid

b). Full Hybrid

c). Fuel Cell

d). Assist Hybrid

20. A Toyota Prius C Hybrid has ____engine.

a). 1
b). 2
c). half

d). no

21. Select the cycle use in a Hybrid Engine.

a). Otto

b).Diesel

c).Atkinson

d). Isentropic

22. Select the WRONG statement.

a). Toyota produced the Insight Hybrid
b). Hybrid systems rely on very high voltages
c). All of the high voltage cables are covered in orange sleeves for easy identification
d). To test high voltage systems you need a Category 3 (CAT III) digital volt ohmmeter

23. Select the CORRECT statement about Integrated Motor Assist (IMA) hybrid system
a). Produced by Honda
b). This system is the basis for many series parallel hybrid vehicles.
c). This system is capable of instantaneously switching from one power source to another or combining the two.

24. The most common type of hybrid car combines the following:

a). diesel and electric power
b). gas and electric power

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c). biodiesel and electric power

25. In a parallel hybrid:
a). A gas engine runs an electric generator.
b). A gas engine and electric motor can each turn the wheels.
c). The engine has no connection to the transmissions

26. In a series hybrid:

a). An electric motor acts as a backup to a gas engine.
b). A gas engine and an electric motor alternately turn the wheels.
c). A gas engine turns a generator, not the wheels.

27. Small engines are more efficient than large engines because:

a). They weigh less.
b). It takes less fuel to fill the cylinders.
c). both A and B

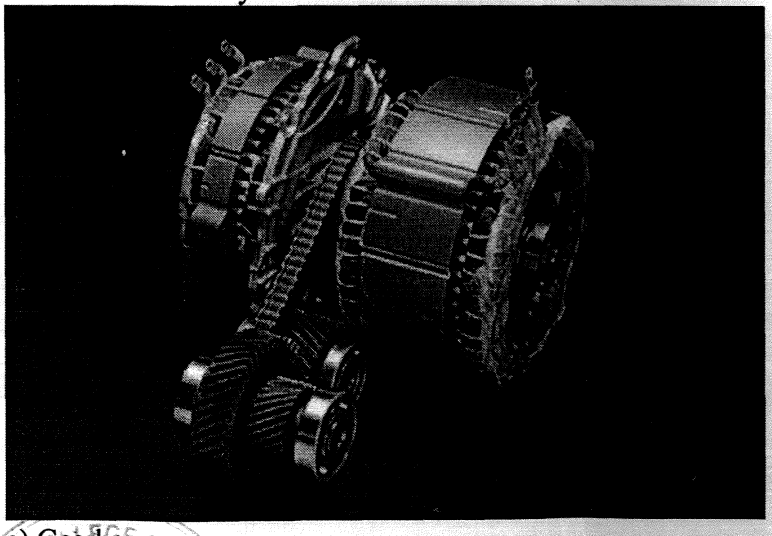
28. In a Prius, the power split device connects the:

a). gasoline engine, generator and electric motor
b). gasoline engine, electric motor and power train
c). gasoline engine, transmission and brakes

29. You should avoid abrupt stops in a hybrid car because:

a). Hybrids are very sensitive to sudden changes in motion.
b). The engine has more time to collect energy.
c). Repairs to regenerative braking systems are extremely expensive.

30. This is the of Hybrid Electric Vehicles



a). Gearbox
b). Motor Generator
c). Automatic Transmission

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d).Engine

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CERTIFICATION COURSE EXAM

CERTIFICATION COURSE NAME: Hybrid and Electric Vehicle Technology 28/30

Time: 1 Hr **Marks: 30**

Date: 28/7/18 **Student Name:** Ujjwal .K. Menon **Reg. No.:** NCE16EEE043

Department:

1. A hybrid vehicle equipped with push button start will enter the POWER ON (KOEO) mode, but will not enter the READY TO DRIVE (KOER) mode. No diagnostic trouble codes (DTCs) are stored. This could be caused by:
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b). 2
c). half

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b).Diesel

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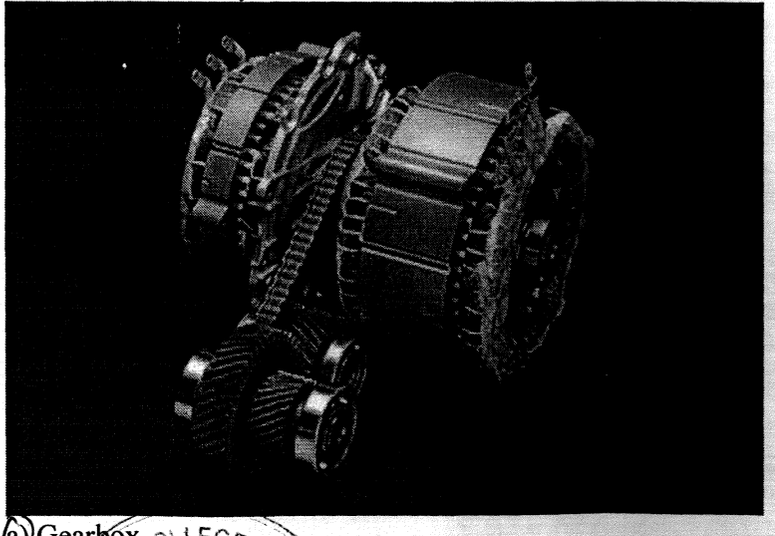
28. In a Prius, the power split device connects the:

a). gasoline engine, generator and electric motor
b). gasoline engine, electric motor and power train
c). gasoline engine, transmission and brakes

29. You should avoid abrupt stops in a hybrid car because:

a). Hybrids are very sensitive to sudden changes in motion.
b). The engine has more time to collect energy.
c). Repairs to regenerative braking systems are extremely expensive.

30. This is the of Hybrid Electric Vehicles



a). Gearbox
b). Motor Generator
c). Automatic Transmission

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CERTIFICATION COURSE EXAM

29/30

CERTIFICATION COURSE NAME: Hybrid and Electric Vehicle Technology

Time: 1 Hr **Marks: 30**

Date: 28/07/18 **Student Name:** SOORAJ M.S **Reg. No.:** NCE16EE041

Department:

1. A hybrid vehicle equipped with push button start will enter the POWER ON (KOEO) mode, but will not enter the READY TO DRIVE (KOER) mode. No diagnostic trouble codes (DTCs) are stored. This could be caused by:
(A) the high voltage safety plug is removed.
(B) a failed brake on/off switch.
(C) an empty fuel tank.
(D) a disconnected 12 V battery.

2. A hybrid vehicle equipped with a separate pump driven inverter cooling system has a diagnostic trouble code (DTC) for inverter overheating. The coolant is at the "full" level in the inverter coolant reservoir tank.
Technician A says that a failed inverter coolant pump could be the cause.
Technician B says that insufficient coolant in the internal combustion engine (ICE) cooling system could be the cause.
Who is right?
(A) A only
(B) B only
(C) Both A and B
(D) Neither A nor B

3. A Type-1 hybrid vehicle will enter READY TO DRIVE (KOER) mode but will not crank the internal combusion engine (ICE). When the vehicle is pushed in NEUTRAL gear range, the engine spins. Which of these could be the cause?
(A) A depleted high voltage battery
(B) A seized MG2
(C) A failed crankshaft position sensor
(D) A seized plenetary gear set

4. During deceleration, the arrows on the power flow display appear as shown. This indicates:
(A) the engine is running with energy flowing to the drive wheels.
(B) the engine is running and driving the motor/generator to recharge the battery pack.
(C) energy from the battery pack and the engine are blended and flowing to the drive wheels.
(D) energy from the drive wheels is being used to recharge the battery pack.

5. A Type-2 hybrid vehicle with a belt-type continuously variable transmission (CVT) bucks and jerks when accelerating from a stop.
Technician A says that using the wrong type of transmission fluid could be the cause.
Technician B says that a failing split pulley/steel belt could be the cause.
Who is right?
A) A only (C) Both A and B
(B) B only (D) Neither A nor B

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6. The MIL is illuminated and a "Battery Module Deterioration" diagnostic trouble code (DTC) is stored. The most likely cause is a failed:
(A) high voltage battery.
(B) high voltage inverter.
(C) motor/generator.
(D) DC/DC converter.

7. What purpose does a generator serve in a hybrid vehicle?

- It converts nuclear energy into more nuclear energy.
- It converts mechanical energy into electrical energy.
- It converts chemical energy into electrical energy.
- It converts electrical energy into mechanical energy.

8. What are the two main types of hybrid vehicle?

- The series hybrid vehicle and the mild hybrid vehicle.
- The parallel hybrid vehicle and the full hybrid vehicle.
- The series hybrid vehicle and the parallel hybrid vehicle.
- The full hybrid vehicle and the empty hybrid vehicle.

9. Which sentence best describes a parallel hybrid vehicle?

- The engine is directly connected to the transmission.
- The electric motor is directly connected to the transmission.
- Both of the above.
- None of the above.

10. Which of these is a purpose of the power-split device?

- To split electrical energy into mechanical energy.
- To allow both the engine and electric motor to propel the vehicle.
- To recharge the battery while braking.
- To recharge the brakes while driving.

11. which of the following is NOT the type of Hybrid Vehicle?

a) Plug-in Hybrid
b) Parallel Hybrid
c) Natural Gas For Vehicles
d) Series Hybrid

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12. The Hybrid Electric Vehicle consists of :

a) NGV engine + Gasoline engine

b) IC engine + Gasoline engine

c) Electric motor+ Electric motor

d) IC engine+ Electric motor

13. "In this system, the engine is used to supply electrical power to the motor, which then turns the wheels" Select the type of Hybrid System according to above description.

a). Series Hybrid

b). Parallel Hybrid

c). Plug-in Hybrid

d). Series-parallel Hybrid

14. "The wheels are driven by both the engine and the motor" Select the type of Hybrid System according to above description.

a). Series Hybrid

b). Parallel Hybrid

c). Plug-in Hybrid

d). Series-parallel Hybrid

15. Select the features of Hybrid Electric Vehicles

a).Idle Stop

b).EV Drive

c). Regenerative braking

d). All the above.

16. The electric motor in a hybrid car can also act as :

a).cooling fan
b). fuel pump
c).generator

d). None of the above

17. Regenerative braking involves :

a). Nano fibers that repair the surface of brake pads

b).reducing the amount of friction necessary to slow a car

c). reclaiming heat from the brakes and using it for power

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18. The benefits of a hybrid car include :

a). reducing emissions

b). improving gas mileage

c). high fuel consumption

d). high speed driving

19. A _____ is a Hybrid source

a).Mild Hybrid

b). Full Hybrid

c). Fuel Cell

d). Assist Hybrid

20. A Toyota Prius C Hybrid has ____engine.

a). 1
b). 2
c). half

d). no

21. Select the cycle use in a Hybrid Engine.

a). Otto

b).Diesel

c).Atkinson

d). Isentropic

22. Select the WRONG statement.

a). Toyota produced the Insight Hybrid
b). Hybrid systems rely on very high voltages
c). All of the high voltage cables are covered in orange sleeves for easy identification
d). To test high voltage systems you need a Category 3 (CAT III) digital volt ohmmeter

23. Select the CORRECT statement about Integrated Motor Assist (IMA) hybrid system
a). Produced by Honda
b). This system is the basis for many series parallel hybrid vehicles.
c). This system is capable of instantaneously switching from one power source to another or combining the two.

24. The most common type of hybrid car combines the following:

a). diesel and electric power
b). gas and electric power

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c). biodiesel and electric power

25. In a parallel hybrid:
a). A gas engine runs an electric generator.
b). A gas engine and electric motor can each turn the wheels.
c). The engine has no connection to the transmissions

26. In a series hybrid:

a). An electric motor acts as a backup to a gas engine.
b). A gas engine and an electric motor alternately turn the wheels.
c). A gas engine turns a generator, not the wheels.

27. Small engines are more efficient than large engines because:

a). They weigh less.
b). It takes less fuel to fill the cylinders.
c). both A and B

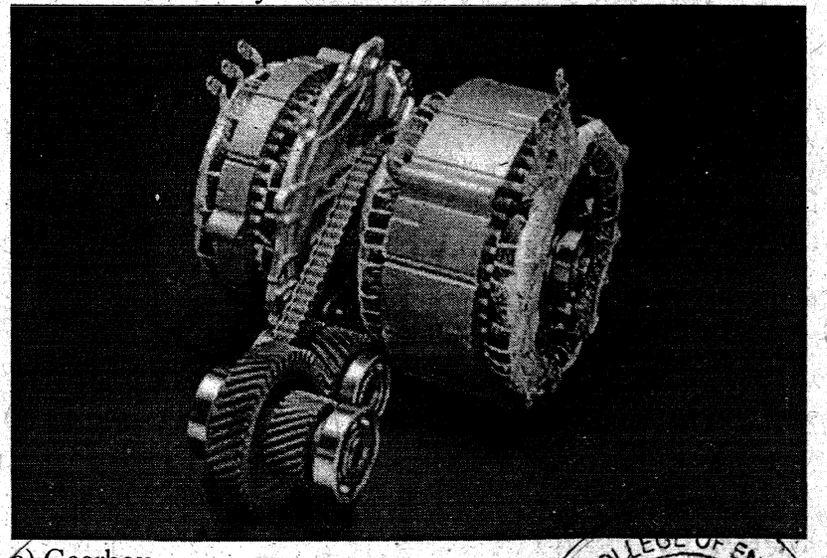
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a).Gearbox
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HYBRID AND ELECTRICAL VEHICLE TECHNOLOGY

ANSWER KEY

Question No.	Answer	Question No.	Answer
1	b	16	a
2	a	17	b
3	c	18	a
4	d	19	d
5	a	20	d
6	b	21	c
7	a	22	b
8	c	23	c
9	c	24	b
10	b	25	c
11	a	26	a
12	d	27	d
13	b	28	b
14	c	29	c
15	c	30	a

Course Coordinator

HoD

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Attendance Sheet for Certificate Course on"HYBRID AND ELECTRICAL VEHICLE TECHNOLOGY "

Electrical & Electronics Engineering(UG) - (2016-20)

Sl.No	Reg.No	Name	23-07-2018		24-07-2018		25-07-2018		26-07-2018		27-07-2018		28-07-2018	
			FN	AN	FN	AN	FN	AN	FN	AN	FN	AN	FN	AN
1	NCE16EE001	AARDHRA T V	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
2	NCE16EE002	ABHIJITH S	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
3	NCE16EE003	ABHISHEK P M	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
4	NCE16EE004	ADITHIAN S	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
5	NCE16EE005	ADITHYAN K G	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
6	NCE16EE007	AISWARYA NAIR A	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
7	NCE16EE008	AJAY RAM P NAIR	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
8	NCE16EE009	AJMAL M	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
9	NCE16EE010	AKHIL T R	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
10	NCE16EE011	AKSHAY G	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
11	NCE16EE014	ANNE MARY THOMAS	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
12	NCE16EE015	ARUN K NARAYANAN	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
13	NCE16EE016	ARUN K S	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
14	NCE16EE018	ATHUL B	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
15	NCE16EE019	BAVIN B	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
16	NCE16EE020	BHAVANA V	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
17	NCE16EE021	DONA CLINFARD P	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
18	NCE16EE022	GOPIKA KRISHNAN K	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
19	NCE16EE023	GOPIKA S	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

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Sl.No	Reg.No	Name	23-07-2018		24-07-2018		25-07-2018		26-07-2018		27-07-2018		28-07-2018	
			FN	AN	FN	AN	FN	AN	FN	AN	FN	AN	FN	AN
20	NCE16EE025	KARTHIKA K												
21	NCE16EE026	KIRAN K NARAYANAN												
22	NCE16EE027	MEERA M												
23	NCE16EE028	MEGHA												
24	NCE16EE031	NAVEEN RAVINDRAN												
25	NCE16EE032	NITHIN BABU												
26	NCE16EE033	PRADEEP J												
27	NCE16EE034	P SRUTHI												
28	NCE16EE035	RAMADAS K												
29	NCE16EE036	R HARIKRISHNAN												
30	NCE16EE037	ROHIT V												
31	NCE16EE038	SALINI M												
32	NCE16EE039	SANJANA S												
33	NCE16EE040	SIDHARTH S MENON												
34	NCE16EE041	SOORAJ M S												
35	NCE16EE042	SUSMITHA T M												
36	NCE16EE043	UJJWAL K MENON												
37	NCE16EE044	VIKAS V												
38	NCE16EE045	VIPIN V												
39	LNCE16EE04	ANIL KR												
40	LNCE16EE04	CYRIL JOSEPH												

Course Coordinator

HoD

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Certificate Course on "HYBRID AND ELECTRICAL VEHICLE TECHNOLOGY "

Electrical & Electronics Engineering(UG) - (2016-20) Batch

ENROLLMENT LIST

21	NCE16EE026	KIRAN K NARAYANAN
22	NCE16EE027	MEERA M
23	NCE16EE028	MEGHA G
24	NCE16EE031	NAVEEN RAVINDRAN
25	NCE16EE032	NITHIN BABU
26	NCE16EE033	PRADEEP J
27	NCE16EE034	P SRUTHI
28	NCE16EE035	RAMADAS K
29	NCE16EE036	R HARIKRISHNAN
30	NCE16EE037	ROHIT V
31	NCE16EE038	SALINI M
32	NCE16EE039	SANJANA S
33	NCE16EE040	SIDHARTH S MENON
34	NCE16EE041	SOORAJ M S
35	NCE16EE042	SUSMITHA T M
36	NCE16EE043	UJJWAL K MENON
37	NCE16EE044	VIKAS V
38	NCE16EE045	VIPIN V
39	LNCE16EE046	ANIL KR
40	LNCE16EE047	CYRIL JOSEPH

Course Coordinator

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Certificate Course on "HYBRID AND ELECTRICAL VEHICLE TECHNOLOGY "

Electrical & Electronics Engineering(UG) - (2016-20) Batch

ENROLLMENT LIST

Sl.No	Reg.No	Name
1	NCE16EE001	AARDHRA T V
2	NCE16EE002	ABHIJITH S
3	NCE16EE003	ABHISHEK P M
4	NCE16EE004	ADITHIAN S
5	NCE16EE005	ADITHYAN K G
6	NCE16EE007	AISWARYA NAIR A
7	NCE16EE008	AJAY RAM P NAIR
8	NCE16EE009	AJMAL M
9	NCE16EE010	AKHIL T R
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16	NCE16EE020	BHAVANA V
17	NCE16EE021	DONA CLINFARD P
18	NCE16EE022	GOPIKA KRISHNAN K
19	NCE16EE023	GOPIKA S
20	NCE16EE025	KARTHIKA K

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HYBRID AND ELECTRICAL VEHICLE TECHNOLOGY

SYLLABUS

Lecture Modules	HYBRID AND ELECTRICAL VEHICLE TECHNOLOGY
1	Introduction to Hybrid Electric Vehicles
2	Motion and dynamic equations for vehicles
3	Basic Architecture of Hybrid Drive Trains and Analysis of Series Drive Train
4	DC-DC Converters for EV and HEV Applications
5	DC-AC Inverter for EV and HEV Applications
6	Induction motors, their configurations and optimization for HEV/EVs

Course Coordinator

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ELECTRICAL AND ELECTRONICS DEPARTMENT

NOTICE 17.07.2018

Department has decided to conduct a certificate course on "HYBRID AND ELECTRICAL VEHICLE TECHNOLOGY from July 23rd 2018 to July 28th 2018.The duration of the course will be for a period of 30 hours. The objective of the course is to impart knowledge on latest developments in hybrid and electrical vehicles. This course will act as a key for enhancing know how of students on modern electric vehicles and for future career opportunities in that field.

Students of 2016-20 batch admissions (UG) are eligible for this course. All concerned students should attend the entire course without fail. Attendance is compulsory.

Copy:

1. Department Notice Board
2. Staff advisors(For Information to students)
3. Office file

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HoD

PRINCIPAL
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Pin 680 597, Kerala

FROM,

RAJKUMAR G

ASSISTANT PROFESSOR,

EEE DEPARTMENT,

NCERC,

PAMPADY

TO,

THE PRINCIPAL,(THROUGH HOD)

EEE DEPARTMENT,

NCERC,

PAMPADY

Sir,

SUB: Requisition for conducting a certificate course on" HYBRID AND ELECTRICAL VEHICLE TECHNOLOGY "-Reg.

REF: Office circular No: NCERC/3128/F/AC/32/18 dt.16-07-2018

We would like to request your support and permission to conduct a certificate course on "HYBRID AND ELECTRICAL VEHICLE TECHNOLOGY " from July 23rd 2018 to July 28th2018.The duration of the course will be for a period of 30 hours. The objective of the course is to impart knowledge on latest developments in hybrid and electrical vehicles. This course will act as a key for enhancing know how of students on modern electric vehicles and for future career opportunities in that field.

The 2016-20 batch admissions(UG) of EEE department are eligible for this course.

So, We kindly request you to provide the permission for doing this certificate course.

Thank you for consideration. I look forward for your response soon.

NEHRU COLLEGE OF ENGINEERING & RESEARCH CENTRE PAMPADY THIRUVILWAMALA THRISSUR DT

PLACE: PAMPADY

DATE: 20-7-18

Recommended & Forwarded

Your's sincerely,

RAJKUMAR G

PRINCIPAL
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(ACCREDITED BY NAAC)

PAMPADY, THIRUVILWAMALA, THRISSUR DIST.

MINUTES OF DEPARTMENT ADVISORY COMMITTEE MEETING HELD ON 16/07/2018

A meeting of the Department Advisory Committee (DAC) was held on 16th July 2018 at 3:00 PM in the chamber of HoD(I/C), EEE department.

The following members were present:

1. Mr. Sundaramoorthi P-HoD(I/C), EEE Dept.
2. Mr. Rajesh P-Assistant Professor, EEE Dept.
3. Mr. David E-Assistant Professor, EEE Dept.
4. Mr. Anoop Kumar M.V-Assistant Professor, EEE Dept.
5. Mr. Rajkumar G-Assistant Professor, EEE Dept.

The following decisions were taken:

1. It was decided to conduct a certificate course on "HYBRID AND ELECTRIC VEHICLE TECHNOLOGY" from 23rd July 2018 to 30th July 2018 for a period of 30 hours.
2. The course will enhance the technical knowledge of students in the latest developments in the field of Electric Vehicle (EV) technology.
3. It was decided to provide the course for 2016-20 batch UG students.
4. Also, It was decided to conduct a certificate course on "AUTONOMOUS VEHICLES AND MACHINES" from 23rd July 2018 to 28th July 2018 for a period of 30 hours.
5. The course will impart knowledge on the latest developments in the field of autonomous vehicles and machines.
6. It was decided to provide the course for 2015-19 batch UG students.
7. Also, it was decided to ensure compulsory attendance and staff advisors should monitor the same.

The meeting came to an end at 3:45 PM.

HoD

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Since 1968

NCERC/Academic/201904/04/2019

From

Department of Electrical and Electronics Engineering

NCERC

To,

The Principal,

NCERC, Pampady

Dear Sir,

Sub: **Request to conduct Training program in Hybrid electric vehicles**

We are planning to organize a training program in Hybrid Electrical Vehiclesfor all faculties of NCERC on 12th of April 2019. We kindly request you to approve it. The resource person is Mr.Anoopkumar M V, an expert in electric vehicle technology.

Thanking You,

HoD,

EEE department.

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Mechanical Engineering

DEPARTMENT OF MECHANICAL ENGINEERING, NCERC, PAMPADY

(NAAC Accredited)

DEPARTMENT ADVISORY COMMITTEE MEETING MINUTES

Venue: Mechanical HoD Room

Date: 17th July, 2017

Time: 3pm

Agenda:

- Introduction of certificate courses for the Academic Year 2017-18
- Any other matter

Members Present

- Dr.S Sankar, HoD
- Mr. Christy Mathew, Asst. Professor
- Mr. Rixon K L, Asst. Professor
- Mr. Tedy Thomas, Asst. Professor
- Mr. Rahul R, Asst. Professor

Minutes of the meeting:

- HoD welcomed the members of Department advisory committee to the meeting.
- It was decided to conduct three certificate courses of 30 hour duration with an end course exam for all interested UG students in ME Dept.
- The course names and faculties handling the courses are decided to be:
    1. **MECHATRONICS IN MANUFACTURING- Mr. Sanoj T**
    2. **TRIBOLOGY IN INDUSTRY: AN OVERVIEW- Mr. Tedy Thomas**
    3. **INTRODUCTION TO FLEXIBLE MANUFACTURING SYSTEM-Mr. Prashob MA**
- It was decided that the course 1 and 2 to be taken in Odd semester and course 3 to be taken in even semester of 2017-18 Academic Year.
- HoD instructed the faculties to fix the dates of commencement of the courses and get the permission from principal.

Meeting came to an end at 3.30 pm.

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From,

Mr. Sanoj T

Assistant Professor

Department of Mechanical Engineering

Nehru College of Engineering and Research Centre

Pampady, Thrissur

To,

The Principal

Nehru College of Engineering and Research Centre

Pampady, Thrissur

Through HoD

Respected Sir/Madam,

Sub: **Permission to conduct certification courses during the academic year 2017-18**-*reg*

The Department of Mechanical Engineering is planning to conduct a 30 hour certification course on **"MECHATRONICS IN MANUFACTURING"**, scheduled during the months August to October of this academic year 2017-18. The course is intended to be beneficial for students in their academics as well as professional life especially in the field of automation and manufacturing. Therefore, this course is offered to all B.Tech Mechanical Engineering students from 04/08/2017 onwards.

I humbly request you to kindly grant the permission for the same.

Thanking You

Place: Pampady

Date: 28/07/2017

Sincerely

28/07/17

Mr. Sanoj T

Forwarded to Principal

28/07/17

(Dr. S. Sankaran)

permitted

NEHRU COLLEGE OF ENGINEERING AND RESEARCH CENTRE

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(Approved by AICTE & Affiliated to University of Calicut and Kerala Technological University)

Since 1966

DEPARTMENT OF MECHANICAL ENGINEERING

CIRCULAR

Date: 28/07/2017

The Department of Mechanical Engineering is planning to conduct a 30 hour certification course on **"MECHATRONICS FOR MANUFACTURING SYSTEMS"**, scheduled during the months of August to October of this academic year 2017-18. The course is intended to be beneficial for students in their academics as well as professional life and therefore is offered to all B.Tech Mechanical Engineering students from 05th August 2017 onwards. All students are hereby directed to enroll in the course mandatorily.

HoD, 21/07/17

Department of Mechanical Engineering

Copy to,

Department Notice Board

To be read in all classes

NEHRU COLLEGE OF ENGINEERING AND RESEARCH CENTRE

PRINCIPAL
Nehru College of
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DEPARTMENT OF MECHANICAL ENGINEERING

MECHATRONICS IN MANUFACTURING

Year: 2017-18

Duration: 30 Hours

Pre-requisites:

Fundamental knowledge of manufacturing processes and exposure to electrical and electronics engineering concepts

Course Objectives:

- To provide insight about Mechatronic system components
- To provide basic knowledge on embedded system concepts
- To develop capacity to design mechatronic system for specific applications

Syllabus:

MODULE 1: Mechatronic system: Elements, levels of Mechatronic system- Definition of mechatronics, Mechatronics in manufacturing, products and design. Review of fundamentals of electronics. Data conversion devices, sensors, micro-sensors, transducers, signal processing devices, relays, contactors and timers.

MODULE 2: Mechatronics design process-Electronic devices for Mechatronics and functions: Signal conditioning- Microprocessors, microcontrollers, PID controllers and PLCs.: Programming and interfacing -Process controllers: Drives: stepper motors, servo drives. Ball screws, linear motion bearings, cams, system controlled by camshafts, electronic cams, indexing mechanisms, tool magazines, and transfer systems.

MODULE 3: Hydraulic systems: flow, pressure and direction control valves, actuators, and supporting elements, hydraulic power packs, pumps. Designing of hydraulic circuits. Pneumatics: production, distribution and conditioning of compressed air, system components and graphic representations, design of systems.

MODULE 4: Programmable logic controllers-Introduction to embedded systems -System interfacing and data acquisition-Design of Mechatronic systems & future trends. Robotics: Review on motion control system and components-Robot programming: Lead through programming.

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Course Outcome:

The students successfully completing this course will have

- An improved knowledge in mechatronic systems for industrial applications in manufacturing.
- Knowledge about the designing aspects related to hydraulic and pneumatic circuits in manufacturing industries

References:

1. Boucher, T. O., Computer automation in manufacturing - an Introduction, Chapman and Hall, 1996.
2. HMT ltd. Mechatronics, Tata Mcgraw-Hill, New Delhi, 1988
3. Deb,S. R., Robotics technology and flexible automation, Tata McGraw-Hill, New Delhi, 1994.
4. Boltan, W., Mechatronics: electronic control systems in mechanical and electrical engineering, Longman,Singapore, 1999.

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DEPARTMENT OF MECHANICAL ENGINEERING

MECHATRONICS IN MANUFACTURING

LECTURE PLAN

TOPICS	DATE
MODULE 1	
Mechatronics in manufacturing, products and design	04-08-2017
Data conversion devices, sensors	05-08-2017
Transducers.Signal processing devices	05-08-2017
Relay, contactors, timers	07-08-2017
MODULE 2	
Electronic devices for mechatronics and functions, signal conditioning	09-08-2017
Microprocessors, PID Controllers,PLCs	11-08-2017
Process controllers, Drives	14-08-2017
Ball screws, Linear motion bearings	17-08-2017
Eleeric cams, indexing mechanism.Transfer system	19-08-2017
MODULE 3	
Hydraulic , flow, pressure, directional control valves	19-08-2017
Actuator, supporting element, Hydraulic power pack	21-08-2017
Designing of hydraulic circuit	23-08-2017
Pneumatics, production, distribution , Conditioning of compressed air	25-08-2017
Design of systems	29-08-2017
MODULE 4	
Programmable logic controller, introduction to embedded system	17-09-2017
System interfacing and data acquisition	19-09-2017
Design of mechtronics system, future trends	25-09-2017
Robotics motion control system and components	27-09-2017
Robot programming- Lead through programming	03-10-2017
End Course Examination	05-10-2017

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THIRUVILWAMALA
THRISSUR DT.

NEHRU COLLEGE OF ENGINEERING AND RESEARCH CENTRE, PAMPADY, THRISSUR
DEPARTMENT OF MECHANICAL ENGINEERING
ENROLLMENT LIST

COURSE NAME:MECHATRONICS IN MANUFACTURING
ACADEMIC YEAR:2017-18
PROGRAM COORDINATOR: Mr. SANOJ T

Sl. No	Reg No	Name
1	NCAOEME001	AADITH K JAYARAJ
2	NCAOEME002	ABEL ELIAS
3	NCAOEME125	ABHIJITH A
4	NCAOEME003	ABHILASH C
5	NCAOEME004	ABHILASH P MOHAN
6	NCAOEME005	ACHUTH KAILAS E
7	NCAOEME006	ADARSH A
8	NCAOEME007	ADARSH CHANDRA
9	NCAOEME008	ADHARSH K T
10	NCAOEME009	ADITH VARMA M
11	NCAOEME010	AJAY SEKHAR
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16	NCAOEME014	AKSHAY SANTHOSH
17	NCAOEME072	AKSHAYDAS NP
18	NCAOEME016	AMAL SANKAR T S
19	NCAOEME017	AMEER SUHAIL
20	NCAOEME018	AMRITHESH M
21	NCAOEME019	ANEESH KRISHNAN P
22	NCAOEME020	ANSAR S
23	NCAOEME021	ANWAR P A
24	NCAOEME022	ARAVIND M.U
25	NCAOEME023	ARJUN A.S
26	NCAOEME133	ARJUNLAL A.C
27	NCAOEME024	ARSHAQ K S
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29	NCAOEME026	ARUN K
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68	NCAOEME065	NANDAGOPAL V V
69	NCAOEME066	NAVEEN S
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73	NCAOEME070	NIKHIL J
74	NCAOEME071	NIKHIL M
75	NCAOEME073	PRAKHIL P
76	NCAOEME074	RAHUL M
77	NCAOEME075	RAHUL MURALI P
78	NCAOEME076	RAJITH MR
79	NCAOEME077	RAKESH P.R
80	NCAOEME078	RAMACHANDRAN S
81	NCAOEME079	RAMDAS M
82	NCAOEME080	RAMSHEER P
83	NCAOEME081	RANJI R
84	NCAOEME082	RANJISH K
85	NCAOEME083	RIJAS S
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126	NCAOEME122	VYSHAK K
127	NCAOEME123	YADHUKRISHNA A
128	NCAOEME124	YADUKRISHNAN V

PROGRAM COORDINATOR

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Kerala

NEHRU COLLEGE OF ENGINEERING AND RESEARCH CENTRE, PAMPADY, THRISSUR
DEPARTMENT OF MECHANICAL ENGINEERING
ATTENDANCE REGISTER

YEAR 2017-18
COURSE MECHATRONICS IN MANUFACTURING
FACULTY-IN-CHARGE Mr. SANOJ T

Sl. No	Reg No	Name	DATES
1	NCAOEME001	ADITHYAYARAJ	
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DEPARTMENT OF MECHANICAL ENGINEERING

END COURSE EXAMINATION

Course: **MECHATRONICS IN MANUFACTURING**

Date: 07/10/2017

Total Marks: **50**

Total Duration: **1 hour**

- Put a tick towards the right answer.
- If multiple options are chosen for a question it will not be considered for evaluation.
- Attend all the questions.
- There will be no negative marking.

Name:_____

Register Number:_____

Semester/Year:_____

Each question carries 2 marks

1. Which of the following is correct for tactile sensors?

a) Touch sensitive
b) Pressure sensitive
c) Input voltage sensitive
d) Humidity sensitive

2. Change in output of sensor with change in input is

a) Threashold
b) Slew rate
c) Sensitivity
d) None of the mentioned

3. Which of the following can be cause for non-zero output when zero input?

a) Bias
b) Slew
c) Offset
d) Offset or bias

4. Sensitivity of a sensor can be depicted by

a) Niquist plot
b) Pole- zero plot
c) Bode plot
d) None of the mentioned

5. Which of the following error is caused by a reversal of measured property?

a) Hysterisis
b) Noise
c) Digitization error
d) Quantization error

6. Smallest change which a sensor can detect is

a) Resolution
b) Accuracy
c) Precision
d) Scale

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7. Thermocouple generate output voltage according to

a) Circuit parameters

b) Humidity

c) Temperature

d) Voltage

8. Sensor is a type of transducer.

a) True

b) False

9. Which of the following is not an analog sensor?

a) Potentiometer

b) Force-sensing resistors

c) Accelerometers

d) None of the mentioned

10. Measured property have no relation with error.

a) True

b) False

11. Difference between input signal and feedback signal is known as

a) Feedback factor

b) Error signal

c) Output signal

d) Input signal

12. Error signal in positive feedback system will be _____ input signal.

a) Greater than

b) Lower than

c) Equal to

d) Negative of

13. Which of the following can be used for measuring temperature?

a) Metallic diaphragm

b) Fluid expansion system

c) Capsule

d) Bourdon tube

14. IPTS stands for a) International Practical Temperature Scale

b) Indian Primary Temperature Scale

c) International Primary Temperature Scale

d) International Practical Temperature Standard

15. In liquid in steel bulb thermometer, which liquid can be used for measuring temperature up to 6000^0C?

a) Mercury

b) Ether

c) Water

d) None of the mentioned

16. Which of the following is used as indication instrument in a liquid expansion system?

a) Bellows

b) Bourdon tube

c) Ammeter

d) Thermometer

17. Which of the following is true for bimetallic type thermometer?

a) Two metals have same temperature coefficients

b) Two metals have different temperature coefficient

c) One metal is cooled always

d) None of the mentioned

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18. When bimetallic thermometer heated, curling occurs to the side of metal with least temperature coefficients.
a) True
b) False

19. Analogous quantities of heat flow and temperature in electrical are _____ and _____
a) Potential and current
b) Current and potential
c) Power and potential
d) Current and power

20. Ratio of net amount of heat received and stored in the body for certain time interval is known as
a) Temperature
b) Thermal coefficient
c) Thermal storage capacity
d) None of the mentioned

21. Heat transfer coefficient of a material with length l is
a) K/l
b) l/K
c) 1/K
d) Kl

22. Output of a bimetallic element will be
a) Strain
b) Pressure
c) Displacement
d) Voltage

23. Which of the following device can be used for force measurement?
a) Beams
b) Bellows
c) Capsule
d) Bourdon tube

24. Load cells are used for measuring
a) Large weights only
b) Small weights only
c) Weights moving in high speed
d) Slowly moving weights

25. Which of the following can be measured using a Ring-type load cell?
a) Large weight
b) Small weight
c) Both large and small weights
d) None of the mentioned

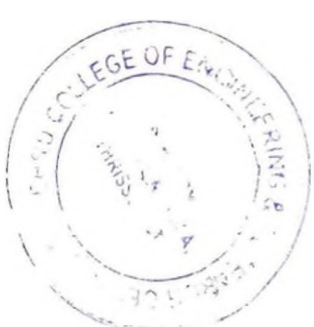
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Pin - 680 588, Kerala

MECHATRONICS IN MANUFACTURING

ANSWER KEY

1. Answer: a
2. Answer: c
3. Answer: d
4. Answer: c
5. Answer: a
6. Answer: a
7. Answer: c
8. Answer: a
9. Answer: d
10. Answer: a
11. Answer: b
12. Answer: a
13. Answer: b
14. Answer: a
15. Answer: a
16. Answer: b
17. Answer: b
18. Answer: a
19. Answer: b
20. Answer: c
21. Answer: a
22. Answer: c
23. Answer: a
24. Answer: d
25. Answer: b



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(NAAC Accredited)

DEPARTMENT OF MECHANICAL ENGINEERING

END COURSE EXAMINATION

Course: **MECHATRONICS IN MANUFACTURING**

Date: 07/10/2017

Total Marks: **50**

36/50

Total Duration: **1 hour**

- Put a tick towards the right answer.
- If multiple options are chosen for a question it will not be considered for evaluation.
- Attend all the questions.
- There will be no negative marking.

Name: Akshay Santhosh

Register Number: NCAOEMSE014

Semester/Year: S7/IV

Each question carries 2 marks

1. Which of the following is correct for tactile sensors?

a) Touch sensitive ✓

b) Pressure sensitive

c) Input voltage sensitive

d) Humidity sensitive

2. Change in output of sensor with change in input is

a) Threashold ✓

b) Slew rate X

c) Sensitivity

d) None of the mentioned

3. Which of the following can be cause for non-zero output when zero input?

a) Bias

b) Slew

c) Offset

d) Offset or bias ✓

4. Sensitivity of a sensor can be depicted by

a) Niquist plot

b) Pole- zero plot ✓

c) Bode plot X

d) None of the mentioned

5. Which of the following error is caused by a reversal of measured property?

a) Hysterisis ✓

b) Noise

c) Digitization error

d) Quantization error

6. Smallest change which a sensor can detect is

a) Resolution ✓

b) Accuracy

c) Precision

d) Scale

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Engineering and Research Centre
Pampady, Thiruvilwamala, Thrissur
Dist. 680 597, Kerala

7. Thermocouple generate output voltage according to

a) Circuit parameters

b) Humidity

c) Temperature

d) Voltage

8. Sensor is a type of transducer.

a) True

b) False

9. Which of the following is not an analog sensor?

a) Potentiometer

b) Force-sensing resistors

c) Accelerometers

d) None of the mentioned

10. Measured property have no relation with error.

a) True

b) False

11. Difference between input signal and feedback signal is known as

a) Feedback factor

b) Error signal

c) Output signal

d) Input signal

12. Error signal in positive feedback system will be _____ input signal.

a) Greater than

b) Lower than

c) Equal to

d) Negative of

13. Which of the following can be used for measuring temperature?

a) Metallic diaphragm

b) Fluid expansion system

c) Capsule

d) Bourdon tube

14. IPTS stands for a) International Practical Temperature Scale

b) Indian Primary Temperature Scale

c) International Primary Temperature Scale

d) International Practical Temperature Standard

15. In liquid in steel bulb thermometer, which liquid can be used for measuring temperature up to 6000^{0}C?

a) Mercury

b) Ether

c) Water

d) None of the mentioned

16. Which of the following is used as indication instrument in a liquid expansion system?

a) Bellows

b) Bourdon tube

c) Ammeter

d) Thermometer

17. Which of the following is true for bimetallic type thermometer?

a) Two metals have same temperature coefficients

b) Two metals have different temperature coefficient

c) One metal is cooled always

d) None of the mentioned

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18. When bimetallic thermometer heated, curling occurs to the side of metal with least temperature coefficients.

a) True
b) False

19. Analogous quantities of heat flow and temperature in electrical are _____ and _____

a) Potential and current
b) Current and potential
c) Power and potential
d) Current and power

20. Ratio of net amount of heat received and stored in the body for certain time interval is known as

a) Temperature
b) Thermal coefficient
c) Thermal storage capacity
d) None of the mentioned

21. Heat transfer coefficient of a material with length l is

a) K/l
b) l/K
c) 1/K
d) Kl

22. Output of a bimetallic element will be

a) Strain
b) Pressure
c) Displacement
d) Voltage

23. Which of the following device can be used for force measurement?

a) Beams
b) Bellows
c) Capsule
d) Bourdon tube

24. Load cells are used for measuring

a) Large weights only
b) Small weights only
c) Weights moving in high speed
d) Slowly moving weights

25. Which of the following can be measured using a Ring-type load cell?

a) Large weight
b) Small weight
c) Both large and small weights
d) None of the mentioned

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2017-18 C1

NEHRU COLLEGE OF ENGINEERING AND RESEARCH CENTRE

(NAAC Accredited)

DEPARTMENT OF MECHANICAL ENGINEERING

END COURSE EXAMINATION

Course: **MECHATRONICS IN MANUFACTURING**

Date: 07/10/2017

Total Marks: **50**

Total Duration: **1 hour**

40/50

- Put a tick towards the right answer.
- If multiple options are chosen for a question it will not be considered for evaluation.
- Attend all the questions.
- There will be no negative marking.

Name: Abel Elias

Register Number: NCAOEMEOO2

Semester/Year: S7/4th

Each question carries 2 marks

1. Which of the following is correct for tactile sensors?

a) Touch sensitive

b) Pressure sensitive

c) Input voltage sensitive

d) Humidity sensitive

2. Change in output of sensor with change in input is

a) Threashold

b) Slew rate

c) Sensitivity

d) None of the mentioned

3. Which of the following can be cause for non-zero output when zero input?

a) Bias

b) Slew

c) Offset

d) Offset or bias

4. Sensitivity of a sensor can be depicted by

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5. Which of the following error is caused by a reversal of measured property?

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Pampady, Thiruvilwamala, Thrissur (Dt)
Pin - 680 587, Kerala

7. Thermocouple generate output voltage according to

a) Circuit parameters
b) Humidity
c) Temperature
d) Voltage

8. Sensor is a type of transducer.

a) True
b) False

9. Which of the following is not an analog sensor?

a) Potentiometer
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d) None of the mentioned

10. Measured property have no relation with error.

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b) Indian Primary Temperature Scale
c) International Primary Temperature Scale
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15. In liquid in steel bulb thermometer, which liquid can be used for measuring temperature up to 6000^{0}C?

a) Mercury
b) Ether
c) Water
d) None of the mentioned

16. Which of the following is used as indication instrument in a liquid expansion system?

a) Bellows
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c) Ammeter
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DEPARTMENT OF MECHANICAL ENGINEERING

END COURSE EXAMINATION

Course: **MECHATRONICS IN MANUFACTURING**

Date: 07/10/2017

Total Marks: **50**

Total Duration: **1 hour**

42/50

- Put a tick towards the right answer.
- If multiple options are chosen for a question it will not be considered for evaluation.
- Attend all the questions.
- There will be no negative marking.

Name: Saanu Sadanand

Register Number: NCA06ME086

Semester/Year: 7/4

Each question carries 2 marks

1. Which of the following is correct for tactile sensors?

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d) Humidity sensitive

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b) Slew rate
c) Sensitivity
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NEHRU COLLEGE OF ENGINEERING AND RESEARCH CENTRE, PAMPADY, THRISSUR
DEPARTMENT OF MECHANICAL ENGINEERING
END COURSE EXAM MARK STATEMENT

YEAR 2017-18
COURSE MECHATRONICS IN MANUFACTURING
FACULTY-IN-CHARGE Mr. SANOJ T

Sl. No	Reg No	Name	MARKS (50)
1	NCAOEME001	ADITHYA JAYARAJ	16
2	NCAOEME002	ABU ELIAS	40
3	NCAOEME125	ABHIJITH A	26
4	NCAOEME003	ABHILASH C	36
5	NCAOEME004	ABHILASH P MOHAN	38
6	NCAOEME005	ACHUTHKAILAS T	18
7	NCAOEME006	ADARSH A	44
8	NCAOEME007	ADARSH CHANDRA	28
9	NCAOEME008	ADHARSH K T	28
10	NCAOEME009	ADITH VARMA M	36
11	NCAOEME010	AJAY SEKHAR	32
12	NCAOEME126	AJITH P BABU	46
13	NCAOEME011	AKHIL KRISHNAN M A	36
14	NCAOEME012	AKSHAY MOHANDAS	48
15	NCAOEME013	AKSHAY P	36
16	NCAOEME014	AKSHAY SANTHOSH	36
17	NCAOEME072	AKSHAYDAS NP	26
18	NCAOEME016	AMAL SANKAR T S	36
19	NCAOEME017	AMEER SUHAIL	32
20	NCAOEME018	AMRITHESH M	38
21	NCAOEME019	ANEESH KRISHNAN P	28
22	NCAOEME020	ANSAR S	40
23	NCAOEME021	ANWAR P A	28
24	NCAOEME022	ARAVIND M.U	46
25	NCAOEME023	ARJUN A.S	28
26	NCAOEME133	ARJUNLAL A.C	30
27	NCAOEME024	ARSHAQ K S	26
28	NCAOEME025	ARUN GOPINATHAN KUNNATH	34
29	NCAOEME026	ARUN K	32
30	NCAOEME027	ARUN S	36
31	NCAOEME028	ASHIK MOHAN	32
32	NCAOEME029	ASHWIN NAIR	34
33	NCAOEME030	ASWAN KRISHNA R	34
34	NCAOEME032	ATHUL T.S	26
35	NCAOEME033	BARATH M	48
36	NCAOEME034	BIJU P.M	48
37	NCAOEME035	BIMAL BAIJU C	28
38	NCAOEME036	DEVNATH C.D	30
39	NCAOEME037	DHANEESH KRISHNAN	38
40	NCAOEME038	DILEEP M	36
41	NCAOEME039	GANESH S	32
42	NCAOEME040	GOKUL P MENON	36
43	NCAOEME132	JIBIN C.K	30
44	NCAOEME041	JISHNU MADHAVAN	28
45	NCAOEME042	JITHIN KRISHNA A.P	32
46	NCAOEME043	JITTO GEORGE	48
47	NCAOEME044	KINAYATH SACHIN MENON	44
48	NCAOEME046	KIRAN KRISHNA P S	32
49	NCAOEME045	KIRANDAS PR	46
50	NCAOEME047	KISHAN S MOHAN	28
51	NCAOEME048	LINTO T PALAYOOR	34
52	NCAOEME127	MANOJ K P	40
53	NCAOEME049	MANSUR K M	42
54	NCAOEME050	MIDHUN A	48
55	NCAOEME051	MIDHUN M	48
56	NCAOEME052	MINHAJ P	44
57	NCAOEME053	MOHAMED SAFEER CHEMBAKASSERI	10
58	NCAOEME054	MOHAMMED NIBIL P.K	42
59	NCAOEME055	MOHAMMED RIFAD	30
60	NCAOEME056	MOHAMMED RISAL	32
61	NCAOEME057	MOHAMMED SALIH N.P	10
62	NCAOEME058	MOHAMMED SHIBIN P	32
63	NCAOEME060	MUHAMMED ANSAR E	34
64	NCAOEME061	MUHAMMED FAYAS K C	34
65	NCAOEME062	MUHAMMED SAHID	16
66	NCAOEME063	NAIR VINAY SASIKUMAR	12
67	NCAOEME064	NAKUL A.P	36
68	NCAOEME065	NANDAGOPAL V V	38
69	NCAOEME066	NAVEEN S	42
70	NCAOEME067	NAZRUL AZLAM	40
71	NCAOEME068	NIBINLAL PT	32
72	NCAOEME069	NIDHIN MOHAN P	44
73	NCAOEME070	NIKHIL J	40
74	NCAOEME071	NIKHIL M	46
75	NCAOEME073	PRAKHIL P	14
76	NCAOEME074	RAHUL M	14
77	NCAOEME075	RAHUL MURALI P	16
78	NCAOEME076	RAJITH MR	12
79	NCAOEME077	RAKESH P R	48
80	NCAOEME078	RAMACHANDRAN S	38
81	NCAOEME079	RAMDAS M	44
82	NCAOEME080	RAMSHEER P	30
83	NCAOEME081	RANJI R	28
84	NCAOEME082	RANJISH K	36
85	NCAOEME083	RIJAS S	30
86	NCAOEME084	ROHIT S THATTIL	44
87	NCAOEME085	ROSHIN K.H	30
88	NCAOEME086	SAANU SADANAND	42
89	NCAOEME087	SACHINDEV V	48
90	NCAOEME088	SAJEEV A S	38
91	NCAOEME089	SAJITH S	38
92	NCAOEME090	SANDEEP KUMAR K P	48
93	NCAOEME091	SANEESH M	42
94	NCAOEME092	SANGEETH NARAYAN B	46
95	NCAOEME093	SANJAY C	30
96	NCAOEME094	SANJAY P.M	46
97	NCAOEME095	SARATH ARAVIND S	36
98	NCAOEME096	SARATH C	32
99	NCAOEME097	SATHEESH R	38
100	NCAOEME098	SHARATH JAYAKRISHNAN	32
101	NCAOEME128	SHOYAB MOHAMED SHELLY	30
102	NCAOEME099	SHRAVAN K	32
103	NCAOEME100	SIDDHARTH G S	32
104	NCAOEME101	SOORAJ BHASKARAN	36
105	NCAOEME102	SOORYAJITH	34
106	NCAOEME129	SREEJITH K	36
107	NCAOEME103	SREEJITH K P	30
108	NCAOEME104	SREEJITH S DEVAN	38
109	NCAOEME105	SREERAG M	28
110	NCAOEME106	SREERAG S	32
111	NCAOEME108	SUBIN D STEPHEN	32
112	NCAOEME109	SUHAIL K.M	38
113	NCAOEME110	SYAMJITH K	44
114	NCAOEME131	TINUKRISHNAN P	36
115	NCAOEME121	VARUN SWAMY V	40
116	NCAOEME112	VIJESH M V	42
117	NCAOEME130	VINEETH VARIYAR	44
118	NCAOEME113	VIPUL VISWANATHAN	32
119	NCAOEME114	VISAL P	36
120	NCAOEME115	VISHNU BHASKAR R	26
121	NCAOEME116	VISHNU M	30
122	NCAOEME117	VISHNU SHANKAR	36
123	NCAOEME118	VISHNU T.G	36
124	NCAOEME119	VIVEK SANKAR P	36
125	NCAOEME120	VIVEK V NAIR	28
126	NCAOEME122	VYSHAK K	34
127	NCAOEME123	YADHUKRISHNA A	12
128	NCAOEME124	YADUKRISHNAN V	18

FACULTY-IN-CHARGE

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Nehru College of Engineering and Research Centre
Pampady, Thiruvilwamala, Thrissur Dt.
PIN 680 597 Kerala

Certificate

AKSHAY SANTHOSH

had successfully completed **MECHATRONICS IN MANUFACTURING** during 2017-2018 conducted by **Department of Mechanical Engineering**at, Nehru College of Engineering and Research Centre Pampady, Thrissur.

PROGRAM
CO-ORDINATOR

HEAD OF
DEPARTMENT

PRINCIPAL

Certificate

ABEL ELIAS

had successfully completed **MECHATRONICS IN MANUFACTURING** during 2017-2018 conducted by **Department of Mechanical Engineering**at, Nehru College of Engineering and Research Centre Pampady, Thrissur.

PROGRAM CO-ORDINATOR

HEAD OF DEPARTMENT

PRINCIPAL
Nehru College of Engineering and Research Centre

Certificate

NCERC

SAANU SADANAND

had successfully completed **MECHATRONICS IN MANUFACTURING** during 2017-2018 conducted by **Department of Mechanical Engineering**at, Nehru College of Engineering and Research Centre Pampady, Thrissur.

PROGRAM
CO-ORDINATOR

HEAD OF
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NEHRU COLLEGE OF ENGINEERING AND RESEARCH CENTRE

(NAAC Accredited)
(Approved by AICTE & Affiliated to University of Calicut and Kerala Technological University)

DEPARTMENT OF MECHANICAL ENGINEERING

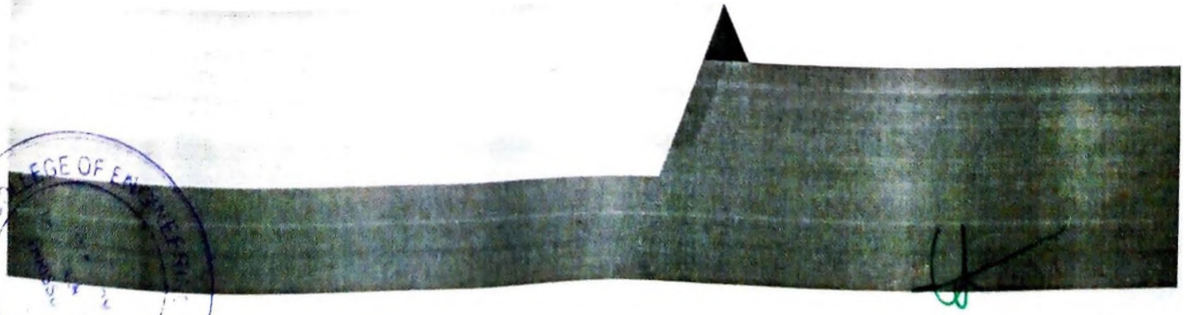
The Department of Mechanical Engineering is planning to conduct a 30 hour certification course scheduled during the months of August and September of this academic year 2017 - 2018 The course is intended to be beneficial for students in their academics as well as professional life and therefore is offered to all B.Tech Mechanical Engineering students. All the students are here by directed to enroll in the course mandatorily.

COURSE NAME:"MECHATRONICS IN MANUFACTURING"

PROGRAM CO-ORDINATOR: Mr. SANOJ T
Assistant Professor
Mechanical Department

DATE OF COMMENCEMENT: : 4th August 2017

DURATION: 30 Hours



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Pin 680 597 Kerala

DEPARTMENT OF MECHANICAL ENGINEERING, NCERC, PAMPADY

(NAAC Accredited)

DEPARTMENT ADVISORY COMMITTEE MEETING MINUTES

Venue: Mechanical HoD Room

Date: 17th July, 2017

Time: 3pm

Agenda:

- Introduction of certificate courses for the Academic Year 2017-18
- Any other matter

Members Present

- Dr.S Sankar, HoD
- Mr. Christy Mathew, Asst. Professor
- Mr. Rixon K L, Asst. Professor
- Mr. Tedy Thomas, Asst. Professor
- Mr. Rahul R, Asst. Professor

Minutes of the meeting:

- HoD welcomed the members of Department advisory committee to the meeting.
- It was decided to conduct three certificate courses of 30 hour duration with an end course exam for all interested UG students in ME Dept.
- The course names and faculties handling the courses are decided to be:
    1. **MECHATRONICS IN MANUFACTURING- Mr. Sanoj T**
    2. **TRIBOLOGY IN INDUSTRY: AN OVERVIEW- Mr. Tedy Thomas**
    3. **INTRODUCTION TO FLEXIBLE MANUFACTURING SYSTEM-Mr. Prashob MA**
- It was decided that the course 1 and 2 to be taken in Odd semester and course 3 to be taken in even semester of 2017-18 Academic Year.
- HoD instructed the faculties to fix the dates of commencement of the courses and get the permission from principal.

Meeting came to an end at 3.30 pm.

NEHRU COLLEGE OF ENGINEERING & RESEARCH CENTRE

PRINCIPAL
Nehru College of
Engineering and Research Centre

From,

Mr. Tedy Thomas

Department of Mechanical Engineering

Nehru College of Engineering and Research Centre

Pampady, Thrissur

To,

The Principal

Nehru College of Engineering and Research Centre

Pampady, Thrissur

Through HoD

Respected Sir/Madam,

Sub: **Permission to conduct certification courses during the academic year 2017-18**-*reg*

The Department of Mechanical Engineering is planning to conduct a 30 hour certification course on **"TRIBOLOGY IN INDUSTRY: AN OVERVIEW"**, scheduled during the months August to October of this academic year 2017-18 The course is intended to be beneficial for students in their academics as well as professional life especially in the field of production in industries. Therefore the course is offered to all B.Tech Mechanical Engineering students from 05/08/2017 onwards.

I humbly request you to kindly grant the permission for the same.

Thanking You

Place: Pampady

Date: 28/07/2017

Sincerely

28/7/17

Mr. Tedy Thomas

forwarded to Principal

28/07/17

permitted

NEHRU COLLEGE OF ENGINEERING AND RESEARCH CENTRE

(NAAC Accredited)

(Approved by AICTE & Affiliated to University of Calicut and Kerala Technological University)

Since 1968

DEPARTMENT OF MECHANICAL ENGINEERING

CIRCULAR

Date: 28/07/2017

The Department of Mechanical Engineering is planning to conduct a 30 hour certification course on **"TRIBOLOGY IN INDUSTRY: AN OVERVIEW"**, scheduled during the months of August to October of this academic year 2017-18. The course is intended to be beneficial for students in their academics as well as professional life and therefore is offered to all B.Tech Mechanical Engineering students from 04th August 2017 onwards. All students are hereby directed to enroll in the course mandatorily.

HoD, 24/07/17

Department of Mechanical Engineering

Copy to,

Department Notice Board

To be read in all classes

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DEPARTMENT OF MECHANICAL ENGINEERING

Since 1968

TRIBOLOGY IN INDUSTRY: AN OVERVIEW

Year: 2017-18

Duration: 30 Hours

Course Objectives:

To give the Student:-

1. To introduce the fundamentals of Friction, Wear and Lubrication.
2. To discuss the design fundamentals of hydrodynamic and hydrostatic bearings
3. To explain the basic design details of rolling contact bearings
4. To discuss the basic bearing failure modes and its remedies

Syllabus

Module 1: Tribology in design, tribology in industry Viscosity, flow of fluids, viscosity and its variation absolute and kinematic viscosity, temperature variation, viscosity index determination of viscosity, different viscometers, Tribological considerations Nature of surfaces and their contact; Physic mechanical properties of surface layer, Geometrical properties of surfaces, methods of studying surfaces; Study of contact of smoothly and rough surfaces.

Module 2: Role of friction and laws of static friction, causes of friction, theories of friction, Laws of rolling friction; Friction of metals and non-metals; Friction measurements. Definition of wear, mechanism of wear, types and measurement of wear, friction affecting wear, Theories of wear; Wear of metals and non-

Module 3 Hydrostatic lubrication: Principle of hydrostatic lubrication, General requirements of bearing materials, types of bearing materials., Hydrostatic step bearing, application to pivoted pad thrust bearing and other applications, Hydrostatic lifts, hydrostatic squeeze films and its application to journal bearing, optimum design of hydrostatic step bearing.

Module 4: Principle of hydrodynamic lubrication, Various theories of lubrication. Petroff's equation. Reynold's equation in two dimensions -Effects of side leakage - Reynolds equation in three dimensions, Friction in sliding bearing, hydro dynamic theory applied to journal bearing, minimum oil film thickness, oil whip and whirl, anti –friction bearing, hydrodynamic thrust bearing.

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Module 5: Air/gas lubricated bearing: Advantages and disadvantages application to Hydrodynamic journal bearings, hydrodynamic thrust bearings. Hydrostatic thrust bearings. Hydrostatic bearing Analysis including compressibility effect. Boundary lubrication; classic hydrodynamics, hydrostatic and elasto hydrodynamic lubrication, Functions of lubricants, Types of lubricants and their industrial uses; SAE classification, recycling, disposal of oils, properties of liquid and grease lubricants; lubricant additives, general properties and selection.

Course Outcome:

To understand

- Effect of friction and wear of bearings in industrial applications
- Basic design procedure for different types of bearings in industrial applications.

References:

1. Design of Machine Elements by VB Bhandari, MaGraw-Hill
2. O'Conner and Boyd, "Standard Hand Book of Lubrication Engineering", McGraw Hill, 1968.
3. Fuller D.D., "Theory and practice of lubrication for Engineers", John Wiley, 1973



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DEPARTMENT OF MECHANICAL ENGINEERING

TRIBOLOGY IN INDUSTRY: AN OVERVIEW

LECTURE PLAN

TOPICS	DATE
MODULE 1	
Tribology in design and tribology in industry	05-08-2017
Viscosity, fluid flow, kinematic and absolute viscosity	05-08-2017
Viscosity index, determination of viscosity, types of viscometers	08-08-2017
Tribological consideration of nature of surfaces	10-08-2017
Mechanical and geometrical properties	
Methods of studying surfaces, rough and smooth surfaces	16-08-2017
MODULE 2	
Role of friction, laws of friction, causes of friction	18-08-2017
Rolling friction, Theories of friction	19-08-2017
Friction in metals and non metals, Friction measurement	20-08-2014
Wear, types, mechanism of wear	20-08-2017
Factors affecting wear, measurement of wear	20-08-2017
MODULE 3	
Hydrostatic lubrication , general requirement of bearing materials	20-08-2017
Types of bearing material,Hydrostatic thrust bearing	21-08-2017
Application of pivoted pad thrust bearing	22-08-2017
Hydrostatic lift, Hydrostatic squeeze film and application	24-08-2017
Optimum design for thrust bearing	28-08-2017
MODULE 4	
Hydrodynamic lubrication, Theories of lubrication	30-08-2017
Petroff's and reynold equation in 2 D	14-09-2017
Reynold equation in 3 D	
Friction sliding bearing, Hydrodynamic theory applied to journal bearing	15-09-2017
Minimum oil film thickness, hydrodynamic thrust bearing	18-09-2017
MODULE 5	
Air/ Gas lubricated bearing, Advantages , disadvantages, applications	20-09-2017
Hydrostatic and hydrodynamic thrust bearing	26-09-2017
Hydrostatic bearing analysis including compressibilty effect	28-09-2017
Boundary lubrication, classic hydrodynamics	
Lubricant function , types, properties	04-10-2017
EXAMINATION	06-10-2017

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NEHRU COLLEGE OF ENGINEERING AND RESEARCH CENTRE, PAMPADY, THRISSUR
DEPARTMENT OF MECHANICAL ENGINEERING
ENROLLMENT LIST

COURSE NAME: **TRIBOLOGY IN INDUSTRY: AN OVERVIEW**
ACADEMIC YEAR: **2017-18**
PROGRAM COORDINATOR: **Mr.TEDY THOMAS**

Sl. No	Reg No	Name
1	NCE15ME001	ABDUL LATHEEF A
2	NCE15ME002	ABDULLA S
3	NCE15ME003	ABEJITH D
4	NCE15ME004	ABHIJITH P
5	NCE15ME005	ABHIJITH V NAIR
6	NCE15ME006	ABHISHEK SUNIL
7	NCE15ME008	ADVAIDH H
8	NCE15ME009	AJITH C
9	NCE15ME010	AJITH K A
10	NCE15ME080	AJITH P V
11	NCE15ME012	AJMAL P
12	NCE15ME013	AKHIL M
13	NCE15ME014	AKHIL MOHAN
14	NCE15ME015	AKHIL P
15	NCE15ME017	AMOGHKRISHNAN
16	NCE15ME018	ANAND C O
17	NCE15ME019	ANAND MOHAN
18	NCE15ME020	ANANTH THILAK K V
19	NCE15ME023	ANIRUDH JAYAKUMAR K
20	NCE15ME022	ANIRUDH M R
21	NCE15ME024	ANIRUDH S NAIR
22	NCE15ME027	ARJUN PADMANABAN
23	NCE15ME025	ARJUN PURATHENDERRI
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27	NCE15ME031	BASSIM A
28	LNCE15ME127	BHARADWAJ R GOVIND
29	NCE15ME032	BIBIN M
30	NCE15ME033	D VIPIN DAS
31	NCE15ME034	DHANESH T
32	NCE15ME035	DHANITH A V
33	NCE15ME036	DHEERAJ V K
34	NCE15ME037	DIVYA MOHAN
35	NCE15ME038	FARHAN T
36	NCE15ME039	GEETHIKA ASHOK
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51	NCE15ME054	KAMIL MOHAMED A
52	NCE15ME055	KARTHIK K
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62	NCE15ME067	MOHAMED JASIL C
63	NCE15ME068	MOHAMMED SAFARULLA H
64	NCE15ME069	MUHAMMED KUNHI M P
65	NCE15ME070	NAJMAL K JAMAL
66	NCE15ME071	NANDAGOPAN K S
67	NCE15ME073	NIJIL C R
68	NCE15ME074	NITHIN A M
69	NCE15ME075	NITHIN K P
70	NCE15ME076	NITHIN R K
71	NCE15ME079	NOUSHAD C N
72	NCE15ME081	PRAJITH T
73	NCE15ME083	RAHUL K R
74	NCE15ME082	RAHUL K R
75	NCE15ME084	RAMSHID S M
76	NCE15ME085	RENJITH N P
77	NCE15ME086	RIDHINJITH M P
78	NCE15ME087	ROBIN RAPPAI
79	NCE15ME089	ROHITH KRISHNAN R
80	NCE15ME090	ROJAN V THANJAN
81	NCE15ME091	ROSHAN AHAMED N A
82	NCE15ME092	SABIQ ZAYAN S
83	NCE15ME093	SACHIN DAS
84	NCE15ME094	SAHAL T
85	NCE15ME095	SAIKRISHNA K B
86	NCE15ME097	SANAL V CYRIAC
87	NCE15ME098	SANDEEP D
88	NCE15ME101	SAURAV P S
89	NCE15ME105	SHRAVAN GOPAL
90	NCE15ME108	SREEJITH S
91	NCE15ME109	SREEJITH V K
92	NCE15ME110	SREEKANTH K
93	NCE15ME112	SREERAG A G
94	NCE15ME113	SREERAG K
95	NCE15ME114	SREERAG P V
96	NCE15ME115	SUDHEESH C
97	NCE15ME118	SURABISH V S
98	NCE15ME119	VAISHNAV V
99	NCE15ME120	VISHAGH V
100	NCE15ME121	VISHNU K N
101	NCE15ME122	VISHNU PRABHAKARAN
102	NCE15ME123	VISWAJITH S NAIR
103	NCE15ME124	VYSAGH V
104	NCE15ME125	VYSAKH P
105		JITHIN P J
106		SUDHEER G

Mr. TEDY THOMAS
PROGRAM COORDINATOR

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NEHRU COLLEGE OF ENGINEERING AND RESEARCH CENTRE, PAMPADY, THRISSUR

DEPARTMENT OF MECHANICAL ENGINEERING

ATTENDANCE REGISTER

YEAR: 2017-18

COURSE: TRIBOLOGY IN INDUSTRY: AN OVERVIEW

FACULTY IN CHARGE: Mr. TEDY THOMAS

Sl. No	Reg No	Name	DATES
1	NCE15ME001	ABDUL LATHEEF A	
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NEHRU COLLEGE OF ENGINEERING AND RESEARCH CENTRE

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DEPARTMENT OF MECHANICAL ENGINEERING

END COURSE EXAMINATION

Course: **TRIBOLOGY IN INDUSTRY: AN OVERVIEW**

Date: 07th October 2017

Total Marks: **50**

Total Duration: **1 hour**

- Put a tick towards the right answer.
- If multiple options are chosen for a question it will not be considered for evaluation.
- Attend all the questions.
- There will be no negative marking.

Name:_____

Register Number:_____

Semester/Year:_____

Each question carries 2 marks

1-The following is (are) the example(s) of static friction

a. Shoe brake applied to a vehicle
b. Shoe brake applied to a train
c. Dry grinding stone abrades the surface of metal
d. All of the above

2-As per laws of dry friction, the frictional force

a. depends upon the nature of sliding surface
b. is independent of the sliding velocity
c. is directly proportional to the load
d. All of the above

3-Lubricant converts

a. Solid friction into liquid friction
b. Liquid friction into solid friction
c. both 'a' and 'b'
d. None of the above

4-The following is not a type of sliding contact bearing

a. Ball bearing
b. Journal bearing
c. Bush bearing
d. Thrust bearing

5- The following is not a type of roller contact bearing

a. Ball bearing
b. Journal bearing

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c. Roller bearing
d. All of the above

6-In thrust bearings, the load acts

a. perpendicular to the axis of shaft
b. in axial direction
c. both 'a' and 'b'
d. None of the above

7-Boundary friction conditions may develop in journal bearings, when shaft passes through zero speed during

a. starting
b. stopping
c. reversing
d. All of the above

8-The following lubricants are obtained by fractional distillation of petroleum

a. Mineral oils
b. Fatty oils
c. Solid lubricants
d. All of the above

9-For low pressure and low speeds, we use

a. Mineral oils
b. Semi-solid lubricants
c. Solid lubricants
d. All of the above

10-The pour point test is employed to indicate the suitability of oil for ____ temperature operations.

a. low
b. high
c. both 'a' and 'b'
d. None of the above

11-The flash point of lubricant must be _____ the working temperature.

a. well below
b. well above
c. equal to
d. None of the above

12-Specific gravity of lubricant can be measured by using

a. Hydrometer
b. Viscometer
c. Anemometer
d. Pyranometer

13-API number of water is

a. 1 b. 5 c. 10 d. 20

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14-The colour code for various grades of lubricants is as follows

Grade of lubricant	Colour code
A. Spindle oil	1. Red
B. Heavy-medium	2. Orange
C. Heavy/Extra heavy	3. Brown
D. Grease	4. Yellow

The correct order is

a. A-3, B-1, C-2, D-4
b. A-4, B-3, C-1, D-2
c. A-1, B-2, C-3, D-4
d. A-4, B-3, C-2, D-1

15-The bi-weekly lubrication is indicated by

a. rectangle
b. triangle
c. circle
d. hexagon

16-The monthly lubrication is indicated by

a. rectangle
b. triangle
c. circle
d. hexagon

17-Lubrication Oil from automobile machines comes under ____ oil.

a. Clean oil
b. Less dirty
c. More dirty
d. Highly dirty

18- The sixth monthly lubrication is indicated by

a. rectangle
b. triangle
c. circle
d. hexagon

19- Asperities are basically

a. Sharp tips on surface.
b. Edge of a surface.
c. Corner of a surface.
d. Hole in a surface.

20- Which one of the following statement is true?

a. Wear rate increases with increasing load.
b. Wear rate decreases with increasing temperature.

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c. Wear rate decreases with increasing speed.
d. Wear rate is independent of load/temperature.

21. _____ is the friction, experienced by a body, due to the motion of rotation as in case of foot step bearings.

a) Pivot friction
b) Solid friction
c) Dry friction
d) None of the mentioned

22. _____ is the friction experienced between two dry and unlubricated surfaces in contact.

a) Pivot friction
b) Solid friction
c) Boundary friction
d) None of the mentioned

23. _____ is the friction, experienced between the rubbing surfaces, when the surfaces have a very thin layer of lubricant.

a) Pivot friction
b) Solid friction
c) Boundary friction
d) None of the mentioned

24. _____ is the friction, experienced between the rubbing surfaces, when the surfaces have a thick layer of the lubricant.

a) Fluid friction
b) Solid friction
c) Boundary friction
d) None of the mentioned

25. _____ is a measure of the resistance offered to the sliding one layer of the lubricant over an adjacent layer.

a) Viscocity
b) Density
c) Oiliness
d) None of the mentioned

TRIBOLOGY IN INDUSTRY: AN OVERVIEW

ANSWER KEY

1. (Ans: d)
2. (Ans: d)
3. (Ans: a)
4. (Ans: a)
5. (Ans: b)
6. (Ans: b)
7. (Ans: d)
8. (Ans: a)
9. (Ans: c)
10. (Ans: a)
11. (Ans: b)
12. (Ans: a)
13. (Ans: c)
14. (Ans: b)
15. (Ans: c)
16. (Ans: a)
17. (Ans: d)
18. (Ans: d)
19. (Ans: a)
20. (Ans: a)
21. (Ans: a)
22. (Ans: b)
23. (Ans: c)
24. (Ans: a)
25. (Ans: a)

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DEPARTMENT OF MECHANICAL ENGINEERING

END COURSE EXAMINATION

Course: **TRIBOLOGY IN INDUSTRY: AN OVERVIEW**

Date: 07th October 2017

Total Marks: **50**

Total Duration: **1 hour**

46/50

- Put a tick towards the right answer.
- If multiple options are chosen for a question it will not be considered for evaluation.
- Attend all the questions.
- There will be no negative marking.

Name: Anand CO

Register Number: NCE15ME018

Semester/Year: Vth Sem 3rd year

Each question carries 2 marks

1-The following is (are) the example(s) of static friction

a. Shoe brake applied to a vehicle
b. Shoe brake applied to a train
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d. ✓ All of the above

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c. Anemometer
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22. _____ is the friction experienced between two dry and unlubricated surfaces in contact.

a) Pivot friction
b) Solid friction
c) Boundary friction
d) None of the mentioned

23. _____ is the friction, experienced between the rubbing surfaces, when the surfaces have a very thin layer of lubricant.

a) Pivot friction
b) Solid friction
c) Boundary friction
d) None of the mentioned

24. _____ is the friction, experienced between the rubbing surfaces, when the surfaces have a thick layer of the lubricant.

a) Fluid friction
b) Solid friction
c) Boundary friction
d) None of the mentioned

25. _____ is a measure of the resistance offered to the sliding one layer of the lubricant over an adjacent layer.

a) Viscocity
b) Density
c) Oiliness
d) None of the mentioned

NEHRU COLLEGE OF ENGINEERING AND RESEARCH CENTRE

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DEPARTMENT OF MECHANICAL ENGINEERING

END COURSE EXAMINATION

Course: **TRIBOLOGY IN INDUSTRY: AN OVERVIEW**

Date: 07th October 2017

Total Marks: **50**

Total Duration: **1 hour**

26/50

- Put a tick towards the right answer.
- If multiple options are chosen for a question it will not be considered for evaluation.
- Attend all the questions.
- There will be no negative marking.

Name: Asath CV

Register Number: NCE15ME028

Semester/Year: S/3

Each question carries 2 marks

1-The following is (are) the example(s) of static friction

a. Shoe brake applied to a vehicle
b. Shoe brake applied to a train
c. Dry grinding stone abrades the surface of metal
d. All of the above

2-As per laws of dry friction, the frictional force

a. depends upon the nature of sliding surface
b. is independent of the sliding velocity
c. is directly proportional to the load
d. All of the above

3-Lubricant converts

a. Solid friction into liquid friction
b. Liquid friction into solid friction
c. both 'a' and 'b'
d. None of the above

4-The following is not a type of sliding contact bearing

a. Ball bearing
b. Journal bearing
c. Bush bearing
d. Thrust bearing

5- The following is not a type of roller contact bearing

a. Ball bearing
b. Journal bearing

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c. Roller bearing
d. All of the above

6-In thrust bearings, the load acts

a. perpendicular to the axis of shaft
b. in axial direction
c. both 'a' and 'b'
d. None of the above

7-Boundary friction conditions may develop in journal bearings, when shaft passes through zero speed during

a. starting
b. stopping
c. reversing
d. All of the above

8-The following lubricants are obtained by fractional distillation of petroleum

a. Mineral oils
b. Fatty oils
c. Solid lubricants
d. All of the above

9-For low pressure and low speeds, we use

a. Mineral oils
b. Semi-solid lubricants
c. Solid lubricants
d. All of the above

10-The pour point test is employed to indicate the suitability of oil for ____ temperature operations.

a. low
b. high
c. both 'a' and 'b'
d. None of the above

11-The flash point of lubricant must be _____ the working temperature.

a. well below
b. well above
c. equal to
d. None of the above

12-Specific gravity of lubricant can be measured by using

a. Hydrometer
b. Viscometer
c. Anemometer
d. Pyranometer

13-API number of water is

a. 1 b. 5 c. 10 d. 20

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14-The colour code for various grades of lubricants is as follows

Grade of lubricant	Colour code
A. Spindle oil	1. Red
B. Heavy-medium	2. Orange
C. Heavy/Extra heavy	3. Brown
D. Grease	4. Yellow

The correct order is

a. A-3, B-1, C-2, D-4
b. A-4, B-3, C-1, D-2
c. A-1, B-2, C-3, D-4
d. A-4, B-3, C-2, D-1

15-The bi-weekly lubrication is indicated by

a. rectangle
b. triangle
c. circle
d. hexagon

16-The monthly lubrication is indicated by

a. rectangle
b. triangle
c. circle
d. hexagon

17-Lubrication Oil from automobile machines comes under ____ oil.

a. Clean oil
b. Less dirty
c. More dirty
d. Highly dirty

18- The sixth monthly lubrication is indicated by

a. rectangle
b. triangle
c. circle
d. hexagon

19- Asperities are basically

a. Sharp tips on surface.
b. Edge of a surface.
c. Corner of a surface.
d. Hole in a surface.

20- Which one of the following statement is true?

a. Wear rate increases with increasing load.
b. Wear rate decreases with increasing temperature.

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c. Wear rate decreases with increasing speed.
d. Wear rate is independent of load/temperature.

21. _____ is the friction, experienced by a body, due to the motion of rotation as in case of foot step bearings.

a) Pivot friction
b) Solid friction
c) Dry friction
d) None of the mentioned

22. _____ is the friction experienced between two dry and unlubricated surfaces in contact.

a) Pivot friction
b) Solid friction
c) Boundary friction
d) None of the mentioned

23. _____ is the friction, experienced between the rubbing surfaces, when the surfaces have a very thin layer of lubricant.

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d) None of the mentioned

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a) Viscocity
b) Density
c) Oiliness
d) None of the mentioned

NEHRU COLLEGE OF ENGINEERING AND RESEARCH CENTRE

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DEPARTMENT OF MECHANICAL ENGINEERING

END COURSE EXAMINATION

Course: **TRIBOLOGY IN INDUSTRY: AN OVERVIEW**

Date: 07th October 2017

Total Marks: **50**

Total Duration: **1 hour**

28/50

- Put a tick towards the right answer.
- If multiple options are chosen for a question it will not be considered for evaluation.
- Attend all the questions.
- There will be no negative marking.

Name: Dhanith. AV.

Register Number: NCE15ME085

Semester/Year: 5/3

Each question carries 2 marks

1-The following is (are) the example(s) of static friction

a. Shoe brake applied to a vehicle
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d. A-4, B-3, C-2, D-1

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NEHRU COLLEGE OF ENGINEERING AND RESEARCH CENTRE, PAMPADY, THRISSUR
DEPARTMENT OF MECHANICAL ENGINEERING
END COURSE EXAM MARK STATEMENT

YEAR: 2017-18
COURSE: TRIBOLOGY IN INDUSTRY: AN OVERVIEW
FACULTY-IN-CHARGE: Mr. TEDY THOMAS

Sl. No	Reg No	Name	MARKS (50)
1	NCE15ME001	ABDUL LATHEEF A	36
2	NCE15ME002	ABDULLA S	34
3	NCE15ME003	ABEJITH D	26
4	NCE15ME004	ABHIJITH P	34
5	NCE15ME005	ABHIJITH V NAIR	28
6	NCE15ME006	ABHISHEK SUNIL	46
7	NCE15ME008	ADVAIDH H	34
8	NCE15ME009	AJITH C	32
9	NCE15ME010	AJITH K A	34
10	NCE15ME080	AJITH P V	30
11	NCE15ME012	AJMAL P	36
12	NCE15ME013	AKHIL M	32
13	NCE15ME014	AKHIL MOHAN	38
14	NCE15ME015	AKHIL P	30
15	NCE15ME017	AMOGHKRISHNAN	46
16	NCE15ME018	ANAND C O	46
17	NCE15ME019	ANAND MOHAN	44
18	NCE15ME020	ANANTH THILAK K V	36
19	NCE15ME023	ANIRUDH JAYAKUMAR K	28
20	NCE15ME022	ANIRUDH M R	36
21	NCE15ME024	ANIRUDH S NAIR	28
22	NCE15ME027	ARJUN PADMANABAN	26
23	NCE15ME025	ARJUN PURATHENDERRI	28
24	NCE15ME028	ASRITH K V	26
25	NCE15ME030	ATHUL DAS C H	26
26	NCE15ME029	ATHUL K	28
27	NCE15ME031	BASSIM A	32
28	LNCE15ME127	BHARADWAJ R GOVIND	38
29	NCE15ME032	BIBIN M	34
30	NCE15ME033	D VIPIN DAS	32
31	NCE15ME034	DHANESH T	44
32	NCE15ME035	DHANITH A V	28
33	NCE15ME036	DHEERAJ V K	40
34	NCE15ME037	DIVYA MOHAN	38
35	NCE15ME038	FARHAN T	10
36	NCE15ME039	GEETHIKA ASHOK	32
37	NCE15ME040	GIRISH K M	44
38	NCE15ME041	GOUTHAM C	30
39	NCE15ME042	GOVIND M	32
40	NCE15ME043	HABEEB N	34
41	NCE15ME044	HAFIS M	44
42	NCE15ME045	HARIKRISHNAN S	40
43	LNCE15ME128	HARIKRISHNAN V	46
44	NCE15ME046	HARIRAM V	46
45	NCE15ME048	HASHEL O	40
46	NCE15ME049	JAIS TOM SAJI V	28
47	NCE15ME050	JAMES JAMES	36
48	NCE15ME051	JINO KURIAKOSE	30
49	NCE15ME052	JITHIN C R	40
50	NCE15ME053	JOVIN AUGUSTIAN MATHEW	34
51	NCE15ME054	KAMIL MOHAMED ABOOBACKER	14
52	NCE15ME055	KARTHIK K	32
53	NCE15ME057	KIRAN R NAIR	46

Sl. No	Reg No	Name	MARKS (50)
54	NCE15ME058	KRISHNA PRASAD T M	38
55	LNCE15ME129	KRISHNA RAJ	28
56	NCE15ME059	LINOL P LORANCE	28
57	NCE15ME062	MAHMOOD ABOOBACKER P K	14
58	NCE15ME063	MANISH MOHAN	30
59	NCE15ME064	MANJUNATH A	50
60	NCE15ME065	MELVIN JOHNSON	42
61	NCE15ME066	MITHUN GOPINATH	34
62	NCE15ME067	MOHAMED JASIL C	32
63	NCE15ME068	MOHAMMED SAFARULLA H	32
64	NCE15ME069	MUHAMMED KUNHI M P	26
65	NCE15ME070	NAJMAL K JAMAL	44
66	NCE15ME071	NANDAGOPAN K S	32
67	NCE15ME073	NIJIL C R	34
68	NCE15ME074	NITHIN A M	38
69	NCE15ME075	NITHIN K P	50
70	NCE15ME076	NITHIN R K	48
71	NCE15ME079	NOUSHAD C N	40
72	NCE15ME081	PRAJITH T	30
73	NCE15ME083	RAHUL K R	42
74	NCE15ME082	RAHUL K R	26
75	NCE15ME084	RAMSHID S M	26
76	NCE15ME085	RENJITH N P	32
77	NCE15ME086	RIDHINJITH M P	12
78	NCE15ME087	ROBIN RAPPAI	34
79	NCE15ME089	ROHITH KRISHNAN R	30
80	NCE15ME090	ROJAN V THANJAN	36
81	NCE15ME091	ROSHAN AHAMED N A	44
82	NCE15ME092	SABIQ ZAYAN S	30
83	NCE15ME093	SACHIN DAS	30
84	NCE15ME094	SAHAL T	38
85	NCE15ME095	SAIKRISHNA K B	28
86	NCE15ME097	SANAL V CYRIAC	42
87	NCE15ME098	SANDEEP D	40
88	NCE15ME101	SAURAV P S	44
89	NCE15ME105	SHRAVAN GOPAL	48
90	NCE15ME108	SREEJITH S	44
91	NCE15ME109	SREEJITH V K	30
92	NCE15ME110	SREEKANTH K	28
93	NCE15ME112	SREERAG A G	30
94	NCE15ME113	SREERAG K	46
95	NCE15ME114	SREERAG P V	38
96	NCE15ME115	SUDHEESH C	40
97	NCE15ME118	SURABISH V S	40
98	NCE15ME119	VAISHNAV V	30
99	NCE15ME120	VISHAGH V	38
100	NCE15ME121	VISHNU K N	28
101	NCE15ME122	VISHNU PRABHAKARAN	26
102	NCE15ME123	VISWAJITH S NAIR	36
103	NCE15ME124	VYSAGH V	30
104	NCE15ME125	VYSAKH P	38
105		JITHIN P J	32
106		SUDHEER G	46

FACULTY-IN-CHARGE

NEHRU COLLEGE OF ENGINEERING AND RESEARCH CENTRE THRISSUR

PRINCIPAL
Nehru College of Engineering and Research Centre
Pampady, Thiruvilwamala, Thrissur Dt

Certificate

ANAND C O

had successfully completed **TRIBOLOGY IN INDUSTRY: AN OVERVIEW** during 2017-2018 conducted by **Department of Mechanical Engineering** at,Nehru College of Engineering and Research Centre Pampady,Thrissur.

PROGRAM
CO-ORDINATOR

HEAD OF
DEPARTMENT

PRINCIPAL

Certificate

ASRITH K V

had successfully completed **TRIBOLOGY IN INDUSTRY: AN OVERVIEW** during 2017-2018 conducted by **Department of Mechanical Engineering** at,Nehru College of Engineering and Research Centre Pampady,Thrissur.

PROGRAM
CO-ORDINATOR

HEAD OF
DEPARTMENT

PRINCIPAL
Nehru College of
Engineering and Research Centre

Certificate

DHANITH A V

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PROGRAM
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NEHRU COLLEGE OF ENGINEERING AND RESEARCH CENTRE

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DEPARTMENT OF MECHANICAL ENGINEERING

The Department of Mechanical Engineering is planning to conduct a 30 hour certification course scheduled during the months of August and September of this academic year 2017 - 2018.The course is intended to be beneficial for students in their academics as well as professional life and therefore is offered to all B.Tech Mechanical Engineering students. All the students are here by directed to enroll in the course mandatorily.

COURSE NAME: "TRIBOLOGY IN INDUSTRY: AN OVERVIEW"

PROGRAM CO-ORDINATOR: Mr.TEDY THOMAS
Assistant Professor
Mechanical Department

DATE OF COMMENCEMENT: : 5th August 2017

DURATION: 30 Hours

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Nehru College of
Engineering and Research Centre
Pampady, Thiruvilwamala, Thrissur Dt.
Pin 680 597, Kerala

DEPARTMENT OF MECHANICAL ENGINEERING, NCERC, PAMPADY

(NAAC Accredited)

DEPARTMENT ADVISORY COMMITTEE MEETING MINUTES

Venue: Mechanical HoD Room

Date: 17th July, 2017

Time: 3pm

Agenda:

- Introduction of certificate courses for the Academic Year 2017-18
- Any other matter

Members Present

- Dr.S Sankar, HoD
- Mr. Christy Mathew, Asst. Professor
- Mr. Rixon K L, Asst. Professor
- Mr. Tedy Thomas, Asst. Professor
- Mr. Rahul R, Asst. Professor

Minutes of the meeting:

- HoD welcomed the members of Department advisory committee to the meeting.
- It was decided to conduct three certificate courses of 30 hour duration with an end course exam for all interested UG students in ME Dept.
- The course names and faculties handling the courses are decided to be:
    1. **MECHATRONICS IN MANUFACTURING- Mr. Sanoj T**
    2. **TRIBOLOGY IN INDUSTRY: AN OVERVIEW- Mr. Tedy Thomas**
    3. **INTRODUCTION TO FLEXIBLE MANUFACTURING SYSTEM-Mr. Prashob MA**
- It was decided that the course 1 and 2 to be taken in Odd semester and course 3 to be taken in even semester of 2017-18 Academic Year.
- HoD instructed the faculties to fix the dates of commencement of the courses and get the permission from principal.

Meeting came to an end at 3.30 pm.

NEHRU COLLEGE OF ENGINEERING & RESEARCH CENTRE

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Nehru College of
Engineering and Research Centre

From,

Mr. Prashob M A

Assistant Professor

Department of Mechanical Engineering

Nehru College of Engineering and Research Centre

Pampady, Thrissur

To,

The Principal

Nehru College of Engineering and Research Centre

Pampady, Thrissur

Through HoD

Respected Sir/Madam,

Sub: **Permission to conduct certification courses during the academic year 2017-18**-*reg*

The Department of Mechanical Engineering is planning to conduct a 30 hour certification course on **"INTRODUCTION TO FLEXIBLE MANUFACTURING SYSTEM"**, scheduled during the months January to March of this academic year 2017-18. The course is intended to be beneficial for students in their academics as well as professional life especially in the field of computer integrated manufacturing. Therefore, this course is offered to all B.Tech Mechanical Engineering students from 15/01/2018 onwards.

I humbly request you to kindly grant the permission for the same.

Thanking You

Place: Pampady

Date: 10/01/2018

Sincerely

Mr. Prashob M A

Forwarded to Principal

10/01/18

(Dr S. Sankar)

Permitted

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Since 1968

DEPARTMENT OF MECHANICAL ENGINEERING

CIRCULAR

Date: 10/01/2018

The Department of Mechanical Engineering is planning to conduct a 30 hour certification course on **"INTRODUCTION TO FLEXIBLE MANUFACTURING SYSTEM"**, scheduled during the months of January to March of this academic year 2017-18. The course is intended to be beneficial for students in their academics as well as professional life and therefore is offered to all B.Tech Mechanical Engineering students from 06th January 2018 onwards. All students are hereby directed to enroll in the course mandatorily.

HoD,

Department of Mechanical Engineering

Copy to,

Department Notice Board

To be read in all classes

NEHRU COLLEGE OF ENGINEERING & RESEARCH CENTRE

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NEHRU COLLEGE OF ENGINEERING AND RESEARCH CENTRE

(NAAC Accredited, Affiliated to University of Calicut, Kerala Technological University)

DEPARTMENT OF MECHANICAL ENGINEERING

Since 1968

INTRODUCTION TO FLEXIBLE MANUFACTURING SYSTEMS

Year: 2017-18

Duration: 30 Hours

Pre-requisites:

A basic knowledge of production processes and their planning and control.

Course Objectives:

To make the Student understand expanded coverage of automation, flexible manufacturing, modern material handling, storage, support systems for both tool and work pieces and emerging trends in modern manufacturing.

Syllabus

Module 1: Introduction to FMS - concepts, advantages, components of FMS and their integration in the data processing systems, FMS scheduling, examples of FMS installations. Group Technology: Introduction, objectives, part families, algorithms and models for G.T. Rank order clustering, Bond energy, mathematical model for machine, component cell formation.

Module 2: Computer Aided Process Planning: Generative and variant types, backward and forward approach, feature based and CAD based CAPP. Design and manufacturing attributes: Parts classification and coding, concept of composite job machine group, cell group tooling, design rationalization.

Module 3: Distributed data processing in FMS: DBMS and their applications in CAD/CAM and FMS distributed systems in FMS; Integration of CAD and CAM Part programming in FMS, tool data base - Clamping devices and fixtures data base.

Module 4: Automated Material Movement and Storage System: Introduction, Types of AGV and Their principle of working, Advantages, Limitation and General AGV Guide path, Robots, Benefits of using Industrial Robots, Basic components and benefits of Automated Storage and Retrieval Systems,

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Conveyors and Pallet Flotation System, Queuing Carrousels and Automatic Work Changers, Coolant and Chip Disposal and Recovery system.

Module 5: Turning and Machining Centres Introduction, Types ,Construction and Operation Performed on Turning enter. Automated Features and Capabilities of Turning Centres. General Advantages and Disadvantages of Vertical and Horizontal Machining Centres, Pallet and Part Loading and Programming Options in Machining Centres, Automated features and capabilities of a Machining Centres.

Course Outcome:

Students who successfully complete this course will have knowledge of latest application of computer control to automate batch production manufacturing.

Reference Books:

1. D. J. Parrish, "Flexible manufacturing systems", Butterworth Heinmann, 1990.

2. Groover, M.P., "Automation, Production System and CIM", Prentice-Hall of India, 2006.

3. David Bedworth, "Computer Integrated Design and Manufacturing", TMH, New Delhi, III Edition 2005.

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Pampady, Thiruvilwamala, Thrissur Dt
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DEPARTMENT OF MECHANICAL ENGINEERING

INTRODUCTION TO FLEXIBLE MANUFACTURING SYSTEM

LECTURE PLAN

TOPICS	DATE
MODULE 1	
FMS Concept, advantages, components	15-01-2018
FMS scheduling, Examples of FMS installation	16-01-2018
Group technology introduction, objectives	17-01-2018
Part family, algorithm and model for GT, Rank order clustering	18-01-2018
Mathematical model for machining, component cell formation	19-01-2018
MODULE 2	
CAPP, Generative and Variant type	20-01-2018
Backward and forward approach, CAD and feature based CAPP	20-01-2018
Design and manufacturing attributr, part classification	20-01-2018
Concept of jobmachine gorup	20-01-2018
Cell group tooling, design rationalizing	
MODULE 3	
Distributed data processing in FMS and application in CAD	21-01-2018
Distributed data processing in DBMS and application in CAD	22-01-2018
Integration of CAD and CAM part programming in FMS	23-01-2018
Tool data base, clamping devices, fixtures data base	24-01-2018
MODULE 4	
Automated material movement and storage system definition	25-01-2018
Types of AGV, Principle	26-01-2018
Advantages, limitations and general path of AGV, robot, benefits	
Benefits of automated storage and Retrievel system	27-01-2018
Conveyors, chip disposal and recovery system	27-01-2018
MODULE 5	
Turning machining centres, types , operations	27-01-2018
Automated features and capabilities of turning centres	27-01-2018
Vertical and horizontal machining centre, pallet and part loading	29-01-2018
Programming options in machining centre	
End course exam	30-01-2018

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NEHRU COLLEGE OF ENGINEERING AND RESEARCH CENTRE, PAMPADY, THRISSUR
DEPARTMENT OF MECHANICAL ENGINEERING
ENROLLMENT LIST

COURSE NAME: **INTRODUCTION TO FLEXIBLE MANUFACTURING SYSTEM**
ACADEMIC YEAR: **2017-18**
PROGRAM COORDINATOR: **Mr.PRASHOB M A**

Sl. No	Reg No	Name
1	NCE16ME001	ABDHUL MANAF P A
2	NCE16ME002	ABHAY PRADEEP K
3	NCE16ME003	ABHIJITH A
4	NCE16ME005	ABHIN K S
5	NCE16ME004	ABHINAND J K
6	NCE16ME006	ABINAV V
7	NCE16ME007	ADARSH BABU K
8	NCE16ME008	ADARSH K P
9	NCE16ME009	ADARSH VS
10	NCE16ME010	ADHARSH M
11	NCE16ME011	ADHITH ROSHAN V K
12	NCE16ME013	AJAY KRISHNA J
13	NCE16ME014	AJAY P
14	NCE16ME015	AJITH
15	NCE16ME017	AJMAL NIZAM
16	NCE16ME020	AKHIL M
17	NCE16ME021	AKSHAY RAVEENDRAN
18	NCE16ME022	ALEX PAUL JACOB
19	NCE16ME023	ALVARISH MOHAMMED M A
20	NCE16ME024	AMAL C VIVEK
21	NCE16ME025	AMAL DEV M A
22	NCE16ME026	AMAL KRISHNA K S
23	NCE16ME029	ANEESH R
24	NCE16ME030	ANOOP K
25	NCE16ME031	ANUPRANAV A
26	NCE16ME032	ANZAL S
27	NCE16ME033	ARJUN B G
28	NCE16ME035	ARJUN R
29	NCE16ME036	ARJUN U
30	NCE16ME038	ARUN KUMAR P S
31	NCE16ME039	ARUN P ARJUN
32	NCE16ME042	ASWIN A S
33	NCE16ME043	ASWIN M
34	NCE16ME044	ASWIN S
35	NCE16ME045	ATHUL ARAVIND
36	NCE16ME046	ATHUL M
37	NCE16ME047	DEEPAK P P
38	NCE16ME048	DHANESH K
39	NCE16ME049	FAZIL MOHAMMED N
40	NCE16ME050	G ARUN KRISHNA
41	NCE16ME051	GOKUL KRISHNAN K
42	NCE16ME052	GOPAN S
43	NCE16ME053	GOVARDHAN J
44	NCE16ME054	GOVIND G
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46	NCE16ME056	HANAN AZEEZ
47	NCE16ME057	HARISANKAR R
48	NCE16ME058	JINTO THIMOTHY
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51	NCE16ME064	L VIGNESH ARAVIND
52	NCE16ME063	LAHSHAD C A
53	NCE16ME065	MIDHUN RAJ K
54	NCE16ME066	MIDUN C
55	NCE16ME068	MOHAMMED RASHAD A T
56	NCE16ME069	MUHAMMED ANEES
57	NCE16ME070	MUHAMMED HASEEBUSSAMAN
58	NCE16ME071	MUHAMMED MUBARIZ A P
59	NCE16ME072	NAVANEETH KRISHNAN P T
60	NCE16ME073	NIVED KRISHNAN
61	NCE16ME075	PAUL JIMS
62	NCE16ME076	PRAJITH P
63	NCE16ME077	PRATHEEV KUMAR K
64	NCE16ME078	R ADHARSH
65	NCE16ME079	RAFEEK T S
66	NCE16ME080	RAHUL M R
67	NCE16ME081	RAHUL R
68	NCE16ME083	RANJITH O
69	NCE16ME084	ROBIN ROY
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74	NCE16ME091	SARATH K
75	NCE16ME092	SARATH V P
76	NCE16ME094	SAYUJ M J
77	NCE16ME096	SHALIF P S
78	NCE16ME097	SHARAN S MENON
79	NCE16ME098	SHIJO JOSHY
80	NCE16ME099	SHIJU V
81	NCE16ME100	SHIYAS M
82	NCE16ME101	SHYAM MA
83	NCE16ME102	SOORAJ SIVADASAN
84	NCE16ME103	SRAVAN T
85	NCE16ME104	SREEHARI MADHU
86	NCE16ME105	SREEHARI UNNIKRISHNAN
87	NCE16ME106	SREENATH K J
88	NCE15ME117	SUFWAN K S
89	NCE16ME107	SURAJ S
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93	NCE16ME110	VAISAKH PRADEEP
94	NCE16ME111	VIGNESH M
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97	NCE16ME115	VISHNU K ANIL KUMAR
98	NCE16ME116	VISHNU K P
99	NCE16ME117	VISHNU SURESH P U
100	NCE16ME118	VIVEKNAIR P A

Mr. PRASHOB MA
PROGRAM COORDINATOR

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Pampady, Thiruvilwamala, Thrissur Dt
Pin 680 597 Kerala

NEHRU COLLEGE OF ENGINEERING AND RESEARCH CENTRE, PAMPADY, THRISSUR
DEPARTMENT OF MECHANICAL ENGINEERING
ATTENDANCE REGISTER

YEAR: 2017-18
COURSE: INTRODUCTIONTO FLEXIBLE MANUFACTURING SYSTEM
FACULTY-IN-CHARGE: Mr. PRASHOB M A

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Program Coordinator: (PRASHOB. M.A)

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Pin 680 597 Kerala

NEHRU COLLEGE OF ENGINEERING AND RESEARCH CENTRE

(NAAC Accredited)

DEPARTMENT OF MECHANICAL ENGINEERING

END COURSE EXAMINATION

Course: **INTRODUCTION TO FLEXIBLE MANUFACTURING SYSTEM**
Date: 29/01/2018
Total Marks: **50**
Total Duration: **1 hour**

- Put a tick towards the right answer.
- If multiple options are chosen for a question it will not be considered for evaluation.
- Attend all the questions.
- There will be no negative marking.

Name:_____

Register Number:_____

Semester/Year:_____

Each question carries 2 marks

1. Utility is created when raw materials and labor are converted into finished goods.

a. time
b. form
c. place
d. product

2. The creation of goods and services using the factors of production is called:

a. production.
b. assembly process.
c. research and development.
d. financial management.

11-The following cell formation technique is based on Component shape and design?

a. Production flow analysis
b. Component flow analysis
c. Composite component
d. Simulation

4. Which of the following does not lead to lower prices?

a. reducing the costs of inputs.
b. increasing the volume of outputs.
c. increasing the costs of inputs.
d. decreasing inputs and increasing outputs.

5. A process or system that either changes raw materials into other products or combines raw materials or parts into a finished product is called:

a. synthetic system.

b. process manufacturing and assembly process.

c. analytic system.

d. A & B.

6. Which country perfected just-in-time inventory control?

a. Canada.

b. USA.

c. Japan.

d. Germany.

7. Flexible manufacturing means:

a. production of goods using less of everything.

b. tailoring products to meet the needs of individual customers.

c. using robots.

d. designing and using individual machines that can do multiple tasks so that each can produce a variety of products.

8. The manufacturing of a car is an example of:

a. assembly process.

b. analytic system.

c. chemical process.

d. transport process.

9. Which of the following is an example of mass customization?

a. a company making 18 bicycle models in more than 2 million combinations.

b. a store that has machines that enable customers to custom design their own vitamins.

c. custom made books with your children's names inserted in key places.

d. all of the above.

10. A chart that shows managers what projects are being worked on and what stage they are at on a daily basis is called:

a. critical path.

b. Pert.

c. Gantt.

d. none of the above.

11. Which of the following are criteria for selecting sites?

a. labour and land.

b. skilled workers.

c. quality of life and education available.

d. all of the above.

12. Which of the following techniques would be used to control a project schedule?

a. a Pert chart.

b. a Taylor chart.

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c. a Walker chart.

d. a Grant chart.

13. An advantage of just-in-time inventory management is:

a. that quality improves dramatically.

b. that the total savings can be enormous.

c. it may lead to increased inventory obsolescence.

d. A & B.

14. To be ISO certified, a company must:

a. have sales over $1M.

b. have over 100 employees.

c. show that all procedures are documented and that employees consistently follow these procedures.

d. all of the above.

15. Which of the following development is considered not to have radically changed the production process?

a. flexible manufacturing.

b. lean manufacturing.

c. benchmarking.

d. mass customization.

16. The following type of Layout caters to 'intermittent flow' type of production.

a. Process layout

b. Product layout

c.Combined layout

d.All of the above

17.Cellular manufacturing is also known as

a. Manufacturing Technology

b. Production Technology

c.Group Technology

d.None of the above

18. Cellular manufacturing is an approach whereby production can be done in

a. Small batches

b. Medium batches

c.Large batches

d.Any of the above

19. The following is (are) the advantage(s) of Cellular manufacturing.

a. Very little in-process inventory

b. More job satisfaction

c.Reduced flow times

d.All of the above

20. In a simple and visual method of Cell design, the priorities in classifying may be in the order

a. Rotational or non rotational – Material – Size – Shape

b. Material – Rotational or non rotational – Size – Shape

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Pin 680 597, Kerala

c.Size – Rotational or non rotational – Material – Shape

d.Shape – Rotational or non rotational – Material – Size

21. In Opitz system, 2nd digit indicates

a. Type and Shape

b. External shape and external shape elements

c.External plane surface finishing

d.Auxiliary hole and gear teeth

22. In cell formation using production flow analysis, following process will be left out of analysis

a. Grinding

b. Milling

c.Drilling

d.Gear cutting

23. Which of the following technique of grouping does not consider the design and shape aspect?

a. A simple and visual method of cell design

b. Family formation by classification and codification

c.Cell formation using Production Flow Analysis

d.All of the above

24. The following is basically a material flow simplification technique.

a. A simple and visual method of cell design

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25. In Cell manufacturing, the cell size (people) should be

a. 6 to 12

b. 10 to 20

c.15 to 25

d.20 to 30

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Kerala

INTRODUCTION TO FLEXIBLE MANUFACTURING SYSTEMW

ANSWER KEY

1. Answer: b
2. Answer: a
3. Answer: b
4. Answer: c
5. Answer: a
6. Answer: c
7. Answer: d
8. Answer: a
9. Answer: d
10. Answer: c
11. Answer: d
12. Answer: a
13. Answer: d
14. Answer: c
15. Answer: c
16. Answer: a
17. Answer: c
18. Answer: a
19. Answer: d
20. Answer: a
21. Answer: b
22. Answer: d
23. Answer: c
24. Answer: c
25. Answer: a.

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DEPARTMENT OF MECHANICAL ENGINEERING

END COURSE EXAMINATION

Course: **INTRODUCTION TO FLEXIBLE MANUFACTURING SYSTEM** 34/50

Date: 29/01/2018

Total Marks: **50**

Total Duration: **1 hour**

- Put a tick towards the right answer.
- If multiple options are chosen for a question it will not be considered for evaluation.
- Attend all the questions.
- There will be no negative marking.

Name: Abdhul Manaf

Register Number: NCE16ME001

Semester/Year: S4 IInd year

Each question carries 2 marks

1. Utility is created when raw materials and labor are converted into finished goods.

a. time

b. form

c. place

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5. A process or system that either changes raw materials into other products or combines raw materials or parts into a finished product is called:

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DEPARTMENT OF MECHANICAL ENGINEERING

END COURSE EXAMINATION

Course: **INTRODUCTION TO FLEXIBLE MANUFACTURING SYSTEM**

Date: 29/01/2018

30/50

Total Marks: **50**

Total Duration: **1 hour**

- Put a tick towards the right answer.
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Name: Gowtamas P.S.

Register Number: NCE16ME038

Semester/Year: IV/II

Each question carries 2 marks

1. Utility is created when raw materials and labor are converted into finished goods.

a. time ✓

b. form

c. place

d. product ✗

2. The creation of goods and services using the factors of production is called:

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b. assembly process. ✓

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d.None of the above

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a. Small batches

b. Medium batches

c.Large batches

d.Any of the above

19. The following is (are) the advantage(s) of Cellular manufacturing.

a. Very little in-process inventory

b. More job satisfaction

c.Reduced flow times

d.All of the above

20. In a simple and visual method of Cell design, the priorities in classifying may be in the order

a. Rotational or non rotational – Material – Size – Shape

b. Material – Rotational or non rotational – Size – Shape

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c.Size – Rotational or non rotational – Material – Shape

d.Shape – Rotational or non rotational – Material – Size

21. In Opitz system, 2nd digit indicates

a. Type and Shape

b. External shape and external shape elements

c.External plane surface finishing

d.Auxiliary hole and gear teeth

22. In cell formation using production flow analysis, following process will be left out of analysis

a. Grinding

b. Milling

c.Drilling

d.Gear cutting

23. Which of the following technique of grouping does not consider the design and shape aspect?

a. A simple and visual method of cell design

b. Family formation by classification and codification

c.Cell formation using Production Flow Analysis

d.All of the above

24. The following is basically a material flow simplification technique.

a. A simple and visual method of cell design

b. Family formation by classification and codification

c.Cell formation using Production Flow Analysis

d.All of the above

25. In Cell manufacturing, the cell size (people) should be

a. 6 to 12

b. 10 to 20

c.15 to 25

d.20 to 30

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(NAAC Accredited)

DEPARTMENT OF MECHANICAL ENGINEERING

END COURSE EXAMINATION

Course: **INTRODUCTION TO FLEXIBLE MANUFACTURING SYSTEM**

Date: 29/01/2018

Total Marks: **50**

Total Duration: **1 hour**

50/50

- Put a tick towards the right answer.
- If multiple options are chosen for a question it will not be considered for evaluation.
- Attend all the questions.
- There will be no negative marking.

Name: Ajmal Nizam

Register Number: NCE16MBE017

Semester/Year: S4/II

Each question carries 2 marks

1. Utility is created when raw materials and labor are converted into finished goods.

a. time

b. form ✓

c. place

d. product

2. The creation of goods and services using the factors of production is called:

a. production. ✓

b. assembly process.

c. research and development.

d. financial management.

11-The following cell formation technique is based on Component shape and design?

a. Production flow analysis

b. Component flow analysis ✓

c. Composite component

d. Simulation

4. Which of the following does not lead to lower prices?

a. reducing the costs of inputs.

b. increasing the volume of outputs.

c. increasing the costs of inputs. ✓

d. decreasing inputs and increasing outputs.

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5. A process or system that either changes raw materials into other products or combines raw materials or parts into a finished product is called:

a. synthetic system.

b. process manufacturing and assembly process.

c. analytic system.

d. A & B.

6. Which country perfected just-in-time inventory control?

a. Canada.

b. USA.

c. Japan.

d. Germany.

7. Flexible manufacturing means:

a. production of goods using less of everything.

b. tailoring products to meet the needs of individual customers.

c. using robots.

d. designing and using individual machines that can do multiple tasks so that each can produce a variety of products.

8. The manufacturing of a car is an example of:

a. assembly process.

b. analytic system.

c. chemical process.

d. transport process.

9. Which of the following is an example of mass customization?

a. a company making 18 bicycle models in more than 2 million combinations.

b. a store that has machines that enable customers to custom design their own vitamins.

c. custom made books with your children's names inserted in key places.

d. all of the above.

10. A chart that shows managers what projects are being worked on and what stage they are at on a daily basis is called:

a. critical path.

b. Pert.

c. Gantt.

d. none of the above.

11. Which of the following are criteria for selecting sites?

a. labour and land.

b. skilled workers.

c. quality of life and education available.

d. all of the above.

12. Which of the following techniques would be used to control a project schedule?

a. a Pert chart.

b. a Taylor chart.

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c. a Walker chart.

d. a Grant chart.

13. An advantage of just-in-time inventory management is:

a. that quality improves dramatically.

b. that the total savings can be enormous.

c. it may lead to increased inventory obsolescence.

d. A & B.

14. To be ISO certified, a company must:

a. have sales over $1M.

b. have over 100 employees.

c. show that all procedures are documented and that employees consistently follow these procedures

d. all of the above.

15. Which of the following development is considered not to have radically changed the production process?

a. flexible manufacturing.

b. lean manufacturing.

c. benchmarking.

d. mass customization.

16. The following type of Layout caters to 'intermittent flow' type of production.

a. Process layout

b. Product layout

c.Combined layout

d.All of the above

17.Cellular manufacturing is also known as

a. Manufacturing Technology

b. Production Technology

c.Group Technology

d.None of the above

18. Cellular manufacturing is an approach whereby production can be done in

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b. Medium batches

c.Large batches

d.Any of the above

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NEHRU COLLEGE OF ENGINEERING AND RESEARCH CENTRE, PAMPADY, THRISSUR

DEPARTMENT OF MECHANICAL ENGINEERING

END COURSE EXAM MARK STATEMENT

YEAR: 2017-18

COURSE: INTRODUCTIONTO FELXIBLE MANUFACTURING SYSTEM

FACULTY-IN-CHARGE: Mr. PRASHOB M A

Sl. No	Reg No	Name	MARKS (50)
1	NCE16ME001	ABDHUL MANAF P A	34
2	NCE16ME002	ABHAY PRADEEP K	30
3	NCE16ME003	ABHIJITH A	16
4	NCE16ME005	ABHIN K S	30
5	NCE16ME004	ABHINAND J K	12
6	NCE16ME006	ABINAV V	44
7	NCE16ME007	ADARSH BABU K	36
8	NCE16ME008	ADARSH K P	10
9	NCE16ME009	ADARSH VS	34
10	NCE16ME010	ADHARSH M	32
11	NCE16ME011	ADHITH ROSHAN V K	10
12	NCE16ME013	AJAY KRISHNA J	26
13	NCE16ME014	AJAY P	26
14	NCE16ME015	AJITH	42
15	NCE16ME017	AJMAL NIZAM	50
16	NCE16ME020	AKHIL M	48
17	NCE16ME021	AKSHAY RAVEENDRAN	26
18	NCE16ME022	ALEX PAUL JACOB	40
19	NCE16ME023	ALVARISH MOHAMMED M A	34
20	NCE16ME024	AMAL C VIVEK	36
21	NCE16ME025	AMAL DEV M A	26
22	NCE16ME026	AMAL KRISHNA K S	26
23	NCE16ME029	ANEESH R	16
24	NCE16ME030	ANOOP K	32
25	NCE16ME031	ANUPRANAV A	32
26	NCE16ME032	ANZAL S	14
27	NCE16ME033	ARJUN B G	30
28	NCE16ME035	ARJUN R	34
29	NCE16ME036	ARJUN U	30
30	NCE16ME038	ARUN KUMAR P S	30
31	NCE16ME039	ARUN P ARJUN	14
32	NCE16ME042	ASWIN A S	28
33	NCE16ME043	ASWIN M	46
34	NCE16ME044	ASWIN S	44
35	NCE16ME045	ATHUL ARAVIND	28
36	NCE16ME046	ATHUL M	46
37	NCE16ME047	DEEPAK P P	42
38	NCE16ME048	DHANESH K	30
39	NCE16ME049	FAZIL MOHAMMED N	36
40	NCE16ME050	G ARUN KRISHNA	28
41	NCE16ME051	GOKUL KRISHNAN K	40
42	NCE16ME052	GOPAN S	34
43	NCE16ME053	GOVARDHAN J	8
44	NCE16ME054	GOVIND G	46
45	NCE16ME055	GOWTHAM KANNAN	32
46	NCE16ME056	HANAN AZEEZ	30
47	NCE16ME057	HARISANKAR R	34
48	NCE16ME058	JINTO THIMOTHY	48
49	NCE16ME059	JISHNU E M	40
50	NCE16ME062	JOSEPH S	42

Sl. No	Reg No	Name	MARKS (50)
51	NCE16ME064	L VIGNESH ARAVIND	26
52	NCE16ME063	LAHSHAD C A	34
53	NCE16ME065	MIDHUN RAJ K	42
54	NCE16ME066	MIDUN C	32
55	NCE16ME068	MOHAMMED RASHAD A T	40
56	NCE16ME069	MUHAMMED ANEES	38
57	NCE16ME070	MUHAMMED HASEEBUSSAMAN	30
58	NCE16ME071	MUHAMMED MUBARIZ A P	26
59	NCE16ME072	NAVANEETH KRISHNAN P T	44
60	NCE16ME073	NIVED KRISHNAN	30
61	NCE16ME075	PAUL JIMS	32
62	NCE16ME076	PRAJITH P	34
63	NCE16ME077	PRATHEEV KUMAR K	44
64	NCE16ME078	R ADHARSH	40
65	NCE16ME079	RAFEEK T S	46
66	NCE16ME080	RAHUL M R	46
67	NCE16ME081	RAHUL R	40
68	NCE16ME083	RANJITH O	28
69	NCE16ME084	ROBIN ROY	36
70	NCE16ME086	ROHIT BABU M K	30
71	NCE16ME088	ROHITH P	40
72	NCE16ME089	RUBEEK B	34
73	NCE16ME090	SABITHMUHSIN P M	28
74	NCE16ME091	SARATH K	32
75	NCE16ME092	SARATH V P	46
76	NCE16ME094	SAYUJ M J	38
77	NCE16ME096	SHALIF P S	34
78	NCE16ME097	SHARAN S MENON	32
79	NCE16ME098	SHIJO JOSHY	32
80	NCE16ME099	SHIJU V	26
81	NCE16ME100	SHIYAS M	50
82	NCE16ME101	SHYAM MA	38
83	NCE16ME102	SOORAJ SIVADASAN	34
84	NCE16ME103	SRAVAN T	44
85	NCE16ME104	SREEHARI MADHU	32
86	NCE16ME105	SREEHARI UNNIKRISHNAN	44
87	NCE16ME106	SREENATH K J	40
88	NCE15ME117	SUFWAN K S	30
89	NCE16ME107	SURAJ S	42
90	NCE16ME108	THEJUS JAYASEELAN	26
91	NCE16ME109	TIBIN T R	26
92	NCE16ME119	V. MUBARAK	32
93	NCE16ME110	VAISAKH PRADEEP	26
94	NCE16ME111	VIGNESH M	34
95	NCE16ME113	VIPIN K	30
96	NCE16ME114	VIPIN K	36
97	NCE16ME115	VISHNU K ANIL KUMAR	44
98	NCE16ME116	VISHNU K P	30
99	NCE16ME117	VISHNU SURESH P U	30
100	NCE16ME118	VIVEKNAIR P A	36

FACULTY-IN-CHARGE

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Certificate

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NCERC

ABDHUL MANAF P A

had successfully completed **INTRODUCTION TO FLEXIBLE MANUFACTURING SYSTEM** during 2017-2018 conducted by **Department of Mechanical Engineering** at,Nehru College of Engineering and Research Centre Pampady,Thrissur.

NEHRU COLLEGE OF ENGINEERING AND RESEARCH CENTRE

PROGRAM CO-ORDINATOR

HEAD OF DEPARTMENT

Certificate

ARUN KUMAR P S

had successfully completed **INTRODUCTION TO FLEXIBLE MANUFACTURING SYSTEM** during 2017-2018 conducted by **Department of Mechanical Engineering** at,Nehru College of Engineering and Research Centre Pampady,Thrissur.

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PROGRAM
CO-ORDINATOR

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DEPARTMENT

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AJMAL NIZAM

had successfully completed **INTRODUCTION TO FLEXIBLE MANUFACTURING SYSTEM** during 2017-2018 conducted by **Department of Mechanical Engineering** at,Nehru College of Engineering and Research Centre Pampady,Thrissur.

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DEPARTMENT OF MECHANICAL ENGINEERING

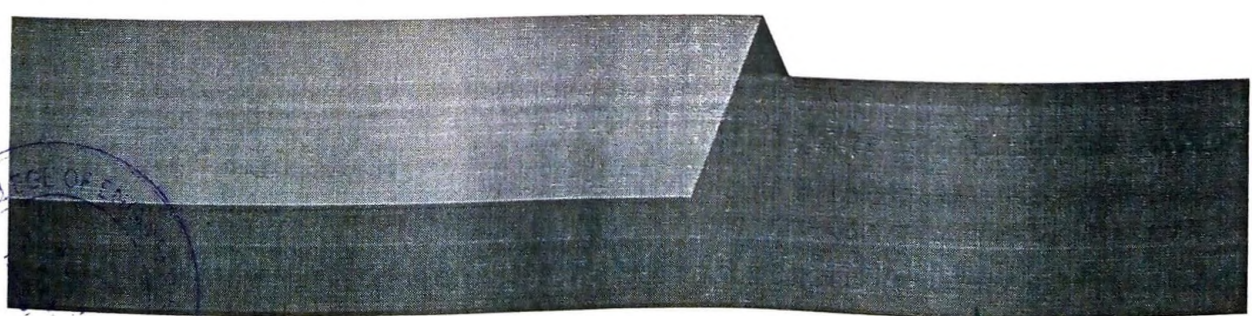
The Department of Mechanical Engineering is planning to conduct a 30 hour certification course scheduled during the months of January and March of this academic year 2017 - 2018 The course is intended to be beneficial for students in their academics as well as professional life and therefore is offered to all B.Tech Mechanical Engineering students. All the students are here by directed to enroll in the course mandatorily.

COURSE NAME:"INTRODUCTION TO FLEXIBLE MANUFACTURING SYSTEM"

PROGRAM CO-ORDINATOR: Mr. PRASHOB M.A
Assistant Professor
Mechanical Department

DATE OF COMMENCEMENT: : 15thJanuary 2018

DURATION: 30 Hours



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Electronics and Communication Engineering

NEHRU COLLEGE OF ENGINEERING AND RESEARCH CENTRE
(NAAC Accredited)
(Approved by AICTE, Affiliated to APJ Abdul Kalam Technological University, Kerala)

ELECTRONICS AND COMMUNICATION DEPARTMENT

NOTICE 2.08.2017

Department has decided to conduct a certificate course on "**PROGRAMMING USING EDA TOOLS IN VLSI DESIGN**"on second and fourth Saturdays of the academic year 2016-17 without affecting class work. The duration of the course will be for a period of 32 hours. The objective of the course is to impart basic knowledge CAD simulation tools.

All UG students of ECE department are eligible for this course. All concerned students should attend the entire course without fail. Attendance is compulsory.

Copy:

1. Department Notice Board
2. Staff advisors(For Information to students)
3. Office file

HoD

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FROM,

MURUGANANTHAM C

ASSISTANT PROFESSOR,

ECE DEPARTMENT, NCERC, PAMPADY

TO,

THE PRINCIPAL,

NCERC, PAMPADY.

Through HOD

Respected Madam,

SUBJECT:-Requisition for conducting a certificate Course, Reg

Department of Electronics & communication Engineering, NCERC, is planning to conduct a certificate Course on "EDA TOOLS IN VLSI DESIGN" from 5-8-17. The course is scheduled as a 30 hour program. The main objective of this course is to provide students with an overview of front end and back end Electronic Design Automation Tools in VLSI design. Kindly request you to grant the permission for conducting the sessions.

All UG/ Students of ECE Dept,are eligible for this course.

Thanking you for your consideration. I look forward for your response soon

Yours sincerely,

Place: Pampady

Date: 1/8/17

HOD

permitted

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(ACCREDITED BY NAAC)

PAMPADY, THIRUVILWAMALA, THRISSUR DIST.

MINUTES OF DEPARTMENT ADVISORY COMMITTEE MEETING HELD ON 01/08/2017

A meeting of the Department Advisory Committee (DAC) was held on July 01 2017 at 3:00 PM in the chamber of HoD, ECE department.

The following members were present:

1. Dr S Rajkumar-HoD, ECE Dept.
2. Mr. P Rajkumar-Assistant Professor, ECE Dept.
3. Mr. Vishnu Prabha N Kaimal-Assistant Professor, ECE Dept.
4. Mrs. Remya K P-Assistant Professor, ECE Dept.
5. Mrs. Lisa C-Assistant Professor, ECE Dept

The following decisions were taken:

1. It was decided to conduct a certificate course on "EDA TOOLS IN VLSI DESIGN" from 5/8/2017 for a period of 30 hours.
2. The course will enhance the knowledge level of students in programming and understanding of digital circuits.
3. It was decided to provide the course for all UG students.
4. Also, it was decided to ensure compulsory attendance and staff advisors should monitor the same.

The meeting came to an end at 3:50 PM.

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PROGRAMMING USING EDA TOOLS IN VLSI DESIGN

Objective of the Course:

This course aims to providing detailed knowledge in VLSI design process starting from digital design, hardware descriptive languages, RTI, synthesis & simulation, verification, FPGA programming & implementation. In this process the learners are well trained to understand the entire logic design process and are well equipped to take on the challenges posed by the even demanding chip design industry.

Learning Outcomes:

After the end of the course the student will be able to complete a significant VLSI design project having a set of objective criteria and design constraints.

Duration of the Course 32 HOURS

Outline of Course

S. No	Topic
1.	Advanced digital Design
2.	CMOS Circuit Design
3.	HDL languages (VHDL,Verilog)
4.	FPGA Architecture
5.	ASIC

SCHEDULE

STARTING DATE:-5-8-2017

COURSE DURATION :-30 HOURS

EXAM DATE:-11-9-2017

HOD

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COURSE NAME:-EDA TOOLS IN VLSI DESIGN (2017-18)

STUDENTS ENROLLMENT LIST

Reg No	Name
NCE16EC001	Abhinaya Visakhan
NCE16EC002	Ahalya S Kumar
NCE16EC003	Aiswaria R
NCE16EC005	Aiswarya Swamy
NCE16EC006	Aiswarya T
NCE16EC004	Aiswarya.k
NCE16EC007	Ajay C
NCE16EC008	Akhila B
NCE16EC009	Akhila P
NCE16EC010	Akshaya V M
NCE16EC012	Anaswara.k
NCE16EC013	Aneesha Prasad
NCE16EC014	Anjali Krishnan
NCE16EC015	Anshima Raj Ep
NCE16EC016	Ansiya P A
NCE16EC017	Aparna.p.p
NCE16EC018	Aswani.m.u
NCE16EC019	Athul Gopinath
NCE16EC020	Athul P.s.
NCE16EC021	Binzila V
NCE16EC025	D Dharshana

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NCE16EC022	Devisree D
NCE16EC023	Dhanushya M
NCE16EC026	Fasna Yasmin
NCE16EC027	Fathima Shibila
NCE16EC029	Haleema H
NCE16EC030	Irene Fathima S
NCE16EC031	Janeesa John
NCE16EC032	Jibin.r
NCE16EC037	M G Greeshma
NCE16EC034	Maneesh M
NCE16EC035	Maya M
NCE16EC036	Meghana P H
NCE16EC038	Midhun Raj M
NCE16EC040	Muhammed Shaffahan
NCE16EC041	Nimisha Rajesh
NCE16EC042	Panchami H
NCE16EC043	Pooja Vijayan
NCE16EC046	R.arya
NCE16EC044	Rahul V Nair
NCE16EC045	Raneesha P
NCE16EC047	Rehna K
NCE16EC048	Reshma Krishna
NCE16EC049	Rishana N
NCE16EC050	Riyas R
NCE16EC052	Sangeeth R Krishnan
NCE16EC053	Sanju Kuriakose
NCE16EC054	Shifna.m
NCE16EC055	Shrikumar M
NCE16EC039	Sreesandhya M R
NCE16EC056	Varsha M K
NCE16EC057	Vidhya K V
NCE16EC058	Vishnu V

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Attendance Sheet for Certificate Course" EDA YANLGUAGE "

Electronics & Communication Engineering(UG) - (2018-19)Batch

		30/1	9/9	4/9	21/9	26	4/9	11/9	18/9	25/9	4/9	2/10	9/10	26	30
NCE15EC001	A Sneha	/	/	/	/	/	/	/	/	/	/	/	/	/	/
NCE15EC003	Adhwaitha M	/	/	/	/	-	/	/	/	/	-	/	/	/	/
NCE15EC004	Aisha Ismail	/	/	/	/	/	/	/	/	/	/	/	/	/	/
NCE15EC005	Aiswarya Muthu	/	/	/	-	A	/	-	/	/	/	A	/	/	-
NCE15EC006	Aiswarya V	/	/	/	/	/	/	/	/	/	/	/	/	/	/
NCE15EC007	Aiswarya Vijayan P	/	/	/	/	/	/	/	/	/	/	/	/	/	/
NCE15EC008	Ajay Kumar P V	/	/	/	/	-	/	-	A	/	/	/	/	/	/
NCE15EC009	Aleesha Hameed	/	/	/	/	/	/	/	/	/	/	/	/	/	/
NCE15EC010	Alphy Joseph	/	/	/	/	/	/	/	/	/	/	/	/	/	/
NCE15EC011	Alwin Cherian	/	/	/	/	/	/	/	/	/	/	/	/	/	/
NCE15EC013	Amrutha Raghunath	/	/	/	/	A	/	/	/	/	/	/	/	/	/
NCE15EC014	Amrutha Vijayan	/	/	/	/	/	/	/	/	/	/	/	/	A	/
NCE15EC015	Anand R Menon	/	/	/	/	/	/	/	/	/	/	/	/	/	/
NCE15EC016	Anisha O A	/	/	/	/	/	/	/	/	/	/	-	-	/	/
NCE15EC017	Anitha K	/	/	/	/	/	/	/	/	/	/	-	A	/	/
NCE15EC018	Ankitha S	/	/	/	/	/	/	/	/	/	/	/	/	/	/
NCE15EC019	Anlee Thattil	/	/	/	/	/	/	/	/	/	/	/	/	/	/
NCE15EC020	Aparna Renny Paul	/	/	/	/	/	/	/	/	/	-	A	/	/	/
NCE15EC021	Aparnna K S	/	/	/	/	/	/	/	/	/	/	/	/	/	/
NCE15EC022	Aravind R	/	/	/	/	/	/	/	/	A	/	/	/	/	/
NCE15EC023	Arya A	/	/	/	/	/	/	/	/	/	/	/	/	/	/
NCE15EC024	Ashwathy Umesh Menon	/	/	/	/	A	/	/	/	/	/	/	/	/	/
NCE15EC025	Aswathy M K	/	/	/	/	/	/	/	/	/	/	/	/	/	/
NCE15EC026	Aswin A	/	/	A	/	/	/	/	/	/	/	/	/	/	/
NCE15EC027	Athira C	/	/	/	/	/	/	/	/	/	/	/	/	/	/
NCE15EC028	Athira Karunanidhi	/	/	/	/	/	/	/	A	/	/	/	/	/	/
NCE15EC029	Athira S	/	/	/	/	/	/	/	/	/	/	/	/	/	/
NCE15EC030	Balaji S	/	/	/	/	/	/	/	/	/	/	/	/	/	/
NCAOEEC085	Sneha K	/	/	/	/	/	/	/	/	/	/	/	/	/	/
NCAOEEC103	Sneha Vs	/	/	/	/	/	/	/	/	/	A	/	/	/	/
NCE16EC003	Aiswaria R	/	/	/	/	/	/	/	/	/	/	/	/	/	/
NCE16EC005	Aiswarya Swamy	/	/	/	/	/	/	/	/	/	/	/	/	/	/
NCE16EC006	Aiswarya T	/	/	/	/	/	/	/	/	/	/	/	/	/	/
NCE16EC004	Aiswarya.k	/	/	/	/	A	/	/	/	/	/	/	A	/	/
NCE16EC007	Ajay C	/	/	/	/	/	/	/	/	/	/	/	/	/	/
NCE16EC008	Akhila B	/	/	/	/	/	/	/	/	/	/	/	/	/	/
NCE16EC009	Akhila P	/	/	/	/	/	/	/	/	/	/	/	/	/	/
NCE16EC010	Akshaya V M	/	/	/	/	/	/	/	/	/	/	/	/	/	/
NCE16EC011	Amaswara	/	/	/	/	/	/	/	/	/	/	/	/	/	/

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NCE16ECD13	Aneesha Prasad														
NCE16ECD14	Anjali Krishnan													A	
NCE16ECD15	Anshima Raj Ep					A									
NCE16ECD16	Anshya P A				A										
NCE16ECD17	Aparna p p														
NCE16ECD18	Aswani m u										A				
NCE16ECD19	Athul Gopinath														
NCE16ECD20	Athul P s														
NCE16ECD21	Binzila V														
NCE16ECD25	D Dharshana							A							
NCE16ECD22	Devasree D											A			
NCE16ECD23	Dhanushya M														
NCE16ECD26	Fasna Yasmin										A				
NCE16ECD27	Fathima Shibila			A											
NCE16ECD29	Haleema H								A						
NCE16ECD30	Irene Fathima S			A											
NCE16ECD31	Janeesa John							A							
NCE16ECD32	Jibin r														
NCE16ECD37	M G Greeshma														
NCE16ECD01	Alshinaya Visakhan				A										
NCE16ECD02	Ahalya S Kumar		A												
NCE16ECD03	Aiswaria R				A										
NCE16ECD05	Aiswarya Swamy													A	
NCE16ECD06	Aiswarya T												A		
NCE16ECD04	Aiswarya k														
NCE16ECD07	Ajay C							A		A					
NCE16ECD08	Akhila B														
NCE16ECD09	Akhila P									A					
NCE16ECD10	Akshaya V M														
NCE16ECD12	Anaswara k														
NCE16ECD13	Aneesha Prasad														
NCE16ECD14	Anjali Krishnan		A												
NCE16ECD15	Anshima Raj Ep					A									
NCE16ECD16	Anshya P A														
NCE16ECD17	Aparna p p														
NCE16ECD18	Aswani m u						A								
NCE16ECD19	Athul Gopinath											A			
NCE16ECD20	Athul P s														
NCE16ECD21	Binzila V			A											
NCE16ECD25	D Dharshana														
NCE16ECD22	Devasree D														
NCE16ECD23	Dhanushya M														
NCE16ECD26	Fasna Yasmin												A		
NCE16ECD27	Fathima Shibila														
NCE16ECD29	Haleema H														
NCE16ECD30	Irene Fathima S														
NCE16ECD31	Janeesa John														

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NCE16EC032	Jibin.r															
NCE16EC037	M G Greeshma															
NCE16EC034	Maneesh M				A			A								
NCE16EC035	Maya M	A														
NCE16EC036	Meghana P H															
NCE16EC038	Midhun Raj M										A					
NCE16EC040	Muhammed Shaffahan			A	A											
NCE16EC041	Nimisha Rajesh				A	A	A	A								
				A												

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COURSE NAME:-EDA TOOLS IN VLSI DESIGN(2017-18)
TOTAL MARKS (30)

1. Higher dose of boron implemented into base collector region. This causes contact resistance & extrinsic base region resistance a) Decreased b) Increased c) not effected d)Inversed

2. Chan stop regions implemented in silicon to increase a) Isolation b) Resistance c) Capacitance d) conduction

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12.Boron used to adjust the a) Threshold voltage b) Current c) Power d) Inductance

13.Which MOS transistor passes strong logic '1'a) pMOS b) nMOS c) (a) & (b) d) None

14. Pinchoff occurs in ----------region a) Non saturation b) Saturation c) cutoff d) linear

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16.----------process is used to transfer the layout pattern from masks to wafer. []a) Diffusion b) Isolation c) photolithographic d) metallization

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ANSWER KEY:- EDA TOOLS IN VLSI DESIGN(2017-18)

1)a 2)c 3)a 4)b 5)c 6)b 7)c 8)a 9)b 10)b

11)c 12)a 13)b 14)d 15)ac16)b 17)c 18)c 19)c 20)a

21)a 22)c 23)d 24)a 25)b 26)a 27)a 28)a 29)b 30)b

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COURSE NAME:-EDA TOOLS IN VLSI DESIGN(2017-18)
TOTAL MARKS (30)

21/30

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COURSE NAME:-EDA TOOLS IN VLSI DESIGN(2017-18)
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Attendance Sheet for Certificate Course"EDA TOOLS IN VLSI DESIGN"

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			30													
NCE15EC001	A Sneha		24													
NCE15EC003	Adhwaitha M		23													
NCE15EC004	Aisha Ismail		23													
NCE15EC005	Aiswarya Muthu		22													
NCE15EC006	Aiswarya V		21													
NCE15EC007	Aiswarya Vijayan P		21													
NCE15EC008	Ajay Kumar P V		22													
NCE15EC009	Aleesha Hameed		17													
NCE15EC010	Alphy Joseph		18													
NCE15EC011	Alwin Cherian		16													
NCE15EC013	Amrutha Raghunath		19													
NCE15EC014	Amrutha Vijayan		22													
NCE15EC015	Anand R Menon		23													
NCE15EC016	Anisha O A		24													
NCE15EC017	Anitha K		25													
NCE15EC018	Ankitha S		26													
NCE15EC019	Anlee Thattil		27													
NCE15EC020	Aparna Renny Paul		25													
NCE15EC021	Aparnna K S		27													
NCE15EC022	Aravind R		26													
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NCE15EC026	Aswin A		25													
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NCE15EC030	Balaji S		25													
NCAOEEC085	Sneha K		23													
NCAOEEC103	Sneha Vs		25													

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for completing Addon course on EDA TOOLS IN VLSI DESIGN
from 11/5/2017 to 11/10/17 conducted by ECE
Dept NCERC, Pampady

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THIRUVILWAMALA
THRISSUR DT.

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Nehru College of
Engineering and Research Centre
Pampady, Thiruvilwamala, Thrissur Dt
Pin 680 597, Kerala

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NEHRU COLLEGE OF ENGINEERING
AND RESEARCH CENTRE

Certificate of Recognition

This certificate is awarded to

ATHUL [illegible] (CB[illegible])

for completing [illegible] course on [illegible]
from [illegible] to [illegible] conducted by ECE
Dept NCERC Pampady

COURSE COORDINATOR

PRINCIPAL
Nehru College of
Engineering and Research Centre
Pampady, Thrissur (Dt)
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NEHRU COLLEGE OF ENGINEERING AND RESEARCH CENTRE

NCERC

Certificate of Recognition

This certificate is awarded to

ASWARYA T (NCE16EC006)

for completing Addon course on EDA TOOLS IN VLSI DESIGN
from 11/8/17 to 4/10/17 conducted by ECE
Dept NCERC, Pampady

COURSE COODINATOR | HOD | PRINCIPAL NCERC

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PAMPADY, THIRUVILWAMALA, THRISSUR DIST.

ADD ON/CERTIFICATE COURSE ON EDA TOOLS IN VLSI DESIGN

DEPARTMENT OF ELECTRONICS AND COMMUNICATION is welcoming all students of ECE department to attend an ADD ON/CERTIFICATE Course on 'EDA TOOLS IN VLSI DESIGN' starting from 05-08-2017. All students of 2016-20 batch (U.G) are eligible to attend this course. The course will enhance the knowledge level of students in programming and understanding of digital circuits .

Course coordinator:-Mr Rahul M Nair(Asst Prof.ECE Dept,NCERC)

Starting date:-05-08-2017

Ending date:-06-10-2017

Duration:- 30 hours

An objective type exam will be conducted after the completion of classes

Students obtaining a minimum of 50 percent marks in the exam will be provided with the course certificate on behalf of NEHRU COLLEGE OF ENGINEERING AND RESEARCH CENTRE PAMPADY, THRISSUR.

Exam Date:-10-10-2017

HOD

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ELECTRONICS AND COMMUNICATION DEPARTMENT

NOTICE 2.08.2017

Department has decided to conduct a certificate course on "ARTIFICIAL INTELLIGENCE USING RASBERRY-PI"from 5-8-2017.The duration of the course will be for a period of 30 hours. The objective of the course is to impart knowledge on embedded programming. This course will help the students to improve the coding skills

Students of 2016-20 batch admissions (UG) of ECE department are eligible for this course. All concerned students should attend the entire course without fail. Attendance is compulsory.

Copy:

1. Department Notice Board
2. Staff advisors(For Information to students)
3. Office file

HoD

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FROM,

JITHIN JOSE KALLADA,

ASSISTANT PROFESSOR,

ECE DEPARTMENT, NCERC, PAMPADY

TO,

THE PRINCIPAL,

NCERC, PAMPADY.

Through HOD

Respected Sir/Madam,

SUBJECT:-Requisition for conducting a certificate Course on "AI USING RASBERY-PI"Reg.

Department of Electronics & communication Engineering, NCERC, is planning to conduct an Add-On Course on "AI USING RASBERY-PI" from 5-8-17. The course is scheduled as a 30 hour program. The main objective of this course is to provide students an understanding of programming based on artificial intelligence . Kindly request you to grant the permission for conducting the sessions.

All UG/ Students of ECE Dept,are eligible for this course.

Thanking you for your consideration. I look forward to your response soon.

Yours sincerely,

Place: Pampady

Date: 4/8/17

HOD

permitted

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MINUTES OF DEPARTMENT ADVISORY COMMITTEE MEETING HELD ON 01/08/2017

A meeting of the Department Advisory Committee (DAC) was held on July 01 2017 at 3:00 PM in the chamber of HoD, ECE department.

The following members were present:

1. Dr S Rajkumar-HoD, ECE Dept.
2. Mr. P Rajkumar-Assistant Professor, ECE Dept.
3. Mr. Vishnu Prabha N Kaimal-Assistant Professor, ECE Dept.
4. Mrs. Remya K P-Assistant Professor, ECE Dept.
5. Mrs. Lisa C-Assistant Professor, ECE Dept

The following decisions were taken:

1. It was decided to conduct a certificate course on "AI USING RASBERRY-PI" from 5/8/2017 for a period of 30 hours.
2. The course will enhance the knowledge level of students in programming and understanding of digital circuits.
3. It was decided to provide the course for all UG students.
4. Also, it was decided to ensure compulsory attendance and staff advisors should monitor the same.

The meeting came to an end at 3:50 PM.

HoD

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ARTIFICIAL INTELLIGENCE USING RASBERRY-PI

The Raspberry Pi is a small, affordable single-board computer that you will use to design and develop fun and practical IoT devices while learning programming and computer hardware. In addition, you will learn how to set up up the Raspberry Pi environment, get a Linux operating system running, and write and execute some basic Python code on the Raspberry Pi. You will also learn how to use Python-based IDE (integrated development environments) for the Raspberry Pi and how to trace and debug Python code on the device. Please note that this course does not include discussion forums.

Syllabus

Module 1

-This module describes the basic functionality the Raspberry Pi B+ board. I'll describe how to set up the board, configure it, and use it. An important point differentiating Raspberry Pi from the Arduino platform which we have talked about previously is that Raspberry Pi uses an operating system. I'll describe some of the implications of an operating system on the behavior of the Raspberry Pi as an IoT device.

Module 2

-The Raspberry Pi is typically installed with a Linux-based operating system, so we present the basics of Linux and its use. We describe some of the main features including navigating the file system and managing processes. We describe the text-based user interface through the shell and we overview the graphic user interface which is the default with the Raspian Linux distribution.

Module 3

-We present the basics of the Python programming language to prepare you for programming on the Raspberry Pi. Many languages can be used but Python is the most convenient for the Raspberry Pi because convenient APIs are provided for basic operations such as controlling the pins. Python is a powerful language with useful features that we will present so that you can use these features to control the Raspberry Pi.

Module 4

-In this module we describe how to communicate with devices through the pins of the Raspberry Pi. We examine the RPi.GPIO library which provides Python functions used to access the pins. We discuss how to set up the pins, apply digital voltages, and generate Pulse Width Modulated signals. We also describe the Tkinter Python library and show how it can be used to access pins through a graphic user interface.

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SCHEDULE

STARTING DATE:-5-8-2017

COURSE DURATION:-30 HOURS

EXAM DATE:-7-9-2017

HOD

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SCHEDULE

STARTING DATE:-5-8-2017

COURSE DURATION:-30 HOURS

EXAM DATE:-7-9-2017

HOD

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COURSE NAME:-AI USING RASBERRY-PI(2017-18)

STUDENTS ENROLLMENT LIST

NCE15EC001	A Sneha
NCE15EC003	Adhwaitha M
NCE15EC004	Aisha Ismail
NCE15EC005	Aiswarya Muthu
NCE15EC006	Aiswarya V
NCE15EC007	Aiswarya Vijayan P
NCE15EC008	Ajay Kumar P V
NCE15EC009	Aleesha Hameed
NCE15EC010	Alphy Joseph
NCE15EC011	Alwin Cherian
NCE15EC013	Amrutha Raghunath
NCE15EC014	Amrutha Vijayan
NCE15EC015	Anand R Menon
NCE15EC016	Anisha O A
NCE15EC017	Anitha K
NCE15EC018	Ankitha S
NCE15EC019	Anlee Thattil
NCE15EC020	Aparna Renny Paul
NCE15EC021	Aparnna K S
NCE15EC022	Aravind R
NCE15EC023	Arya A
NCE15EC024	Ashwathy Umesh Menon
NCE15EC025	Aswathy M K
NCE15EC026	Aswin A
NCE15EC027	Athira C
NCE15EC028	Athira Karunanidhi

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NCE15EC054	Nithisha Mohandas
NCE15EC055	Pooja M
NCE15EC056	R Kavitha
NCE15EC057	R Sneha
NCE15EC058	Rini C V
NCE15EC059	Ruksana M
NCE15EC060	Sajith J
NCE15EC062	Sanila K
NCE15EC064	Saranya P.v.
NCE15EC065	Sarika Sasi
NCE15EC066	Shilpa K
NCE15EC067	Shishira. K. Das
NCE15EC068	Shreya U
NCE15EC069	Sivaprasad R
NCE15EC070	Sonu Jose
NCE15EC071	Sreekanth V K
NCE15EC072	Sreelakshmi D
NCE15EC073	Sreenidhi A M
NCE15EC074	Sruthy K P
NCE15EC075	Sruthy Krishnan C R
NCE15EC076	Sujith P.r.
NCE15EC077	SWAPNA V
NCE15EC078	Syam Dayal B
NCE15EC079	Tejas B Nair
NCE15EC080	Vaishag K P
NCE15EC081	Vignesh T K
NCE15EC082	Vipin M V
NCE15EC083	Vishnu Ravidas
NCE15EC084	Vishnu T
LNCE15EC087	Vishnu U
NCE15EC085	Vishnumaya C

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Attendance Sheet for Certificate Course"AI USING RABERRY-PI "

Electronics & Communication Engineering(UG) - (2016-17)Batch

		5/12/17	9/12/17	16/12	23/12	24/12	27/12	28/12	29/12	30/12	2/1/18	3/1/18	4/1/18	5/1/18	6/1/18	8/1/18	9/1/18	10/1/18	11/1/18	12/1/18	13/1/18	15/1/18	16/1/18	17/1/18	18/1/18
NCE15EC001	A Sneha																								
NCE15EC003	Adhwaitha M																								
NCE15EC004	Aisha Ismail																								
NCE15EC005	Aiswarya Muthu																								
NCE15EC006	Aiswarya V																								
NCE15EC007	Aiswarya Vijayan P																								
NCE15EC008	Ajay Kumar P V																								
NCE15EC009	Aleesha Hameed																								
NCE15EC010	Alphy Joseph																								
NCE15EC011	Alwin Cherian																								
NCE15EC013	Amrutha Raghunath																								
NCE15EC014	Amrutha Vijayan																								
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COORDINATOR

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COUSRE NAME:-ARTIFICIAL INTELLIGENCE USING RASBERRY –PI(2017-18)

TOTAL MARKS(30)

1 .When the 8051 is reset and the $\overline{EA}$ line is HIGH, the program counter points to the first program instruction in the:
A.internal code memory
B.external code memory
C.internal data memory
D. external data memory

2 An alternate function of port pin P3.4 in the 8051 is:
A.Timer 0
B.Timer 1
C.interrupt 0
D.interrupt 1

3 Both registers TL0 and TL1 are needed to start Timer 0.
A.True
B.False

4. 1.Which of the following can be used for long distance communication? a)I2Cxb)Parallel port c)SPI d)RS232

5.Which of the following can affect the long distance communication? a) clock b)resistor c)inductor d)capacitor

6. Which are the serial ports of the IBM PC? a)COM1 b)COM4 andCOM1 c)COM1 andCOM2 d)COM3

7.Which of the following can provide hardware handshaking? a)RS232 b)Parallel port c)Counter d)Timer

8.Which of the signal is set to one, if no data is transmitted? a)READY b)START c)STOP d)TXD

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9.What rate can define the timing in the UART? a)bit rate b)baud rate c)speed rate d)voltage rate.

10.How is baud rate supplied? a)baud rate voltage b)external timer c)peripheral d)internal timer

11.Which is the most commonly used UART? a)8253 b)8254 c)8259

12.Which of the following technique is used by the UNIX operating system? a)logical address memory b)physical address memory c)virtual memory technique d)translational address
13.Which of the following consist two lines of legs on both sides of a plastic or ceramic body? a)SIMM b)DIMM c)Zig-zag d)Dual in-line

14.Which of the following can transfer multiple bits of datasimultaneously?a)serialportb)sequentialportc)concurrentunitd)parallel.

15.Which of the following are interfaced as the outputs to the parallel ports? a)keyboards b)switches c)LEDs d)knobs

16.Which of the following memories has more speed in accessing data? a)SRAM b)DRAM c)EPROM d)EEPROM

17.In which memory, the signals are multiplexed? a)DRAM b)SRAM c)EPROM d)EEPROM

18.How many main signals are used with memory chips? a)2 b)4 c)6 d)8

19.What is the purpose of address bus? a)to provide data to and from the chip b)to select a specified chip c)to select a location within the memory chip d)to select a read/write cycle.50.Which are the two main types of processor connection to the mother board? a)sockets and slots b)sockets and pins c)slots and pins d)pins and ports

20.Pick out the advantage of IC a) Smaller physical size b) Low power consumption c) Reduced cost d) All
21. In the MOSFET, as width of channel increases Idb a) Increases b) decreases c) Constant d) none
22. Latch –up is caused bya) Parasitic R b) Parasitic BJT's c) (a) & (b) d) Parasitic C
23. Pick up latch-up resistant CMOS process a) n well b) p well c) silicon on Insulator d) all
24. Cascaded inverters are used to drive large _____ loads a) Capacitive b) resistive c) inductive d) all
25. In which process (CMOS) pFETs are embedded in n well a) p well b) n well c) SOI d) all
26. In the Pseudo-nMOS logic ----------transistor is used as pull-up resistor a)pMOS b) nMOS c) Bipolar d) Unijunction
27. Latch structure is used in ----------Logic a)Pseudo-nMOS b) DCVS c) Domino d) all
28. Routing channel is spacing between a)cell rows b) cells c) wires d) None
29. Feed throughs are used during[]a)Placement b) Routing c) Floor planning d) Synthesis

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30. For n-type transistor threshold voltage is _____ a) Positive b) negative c) zero d) none

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NCAVECC026

Athulya. D

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22/30

COUSRE NAME:-ARTIFICIAL INTELLIGENCE USING RASBERRY -PI(2017-18)

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30. For n-type transistor threshold voltage is _____ a) Positive b) negative c) zero d) none

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Anjana P.

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25/30

COUSRE NAME:-ARTIFICIAL INTELLIGENCE USING RASBERRY –PI(2017-18)

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THRISSUR DT

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NCAINEECOL 8
ARAVIND M

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Since 1966

23/30

COUSRE NAME:-ARTIFICIAL INTELLIGENCE USING RASBERRY –PI(2017-18)

TOTAL MARKS(30)

1 .When the 8051 is reset and the $\overline{EA}$ line is HIGH, the program counter points to the first program instruction in the:
A.internal code memory
B.external code memory
C.internal data memory
D.external data memory

2 An alternate function of port pin P3.4 in the 8051 is:
A.Timer 0
B.Timer 1
C.interrupt 0
D.interrupt 1

3 Both registers TL0 and TL1 are needed to start Timer 0.
A.True
B.False

4. 1.Which of the following can be used for long distance communication? a)I2Cxb)Parallel port c)SPI d)RS232

5.Which of the following can affect the long distance communication? a) clock b)resistor c)inductor d)capacitor

6. Which are the serial ports of the IBM PC? a)COM1 b)COM4 andCOM1 c)COM1 andCOM2 d)COM3

7.Which of the following can provide hardware handshaking? a)RS232 b)Parallel port c)Counter d)Timer

8.Which of the signal is set to one, if no data is transmitted? a)READY b)START c)STOP d)PXD

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9.What rate can define the timing in the UART? a)bit rate b)baud rate c)speed rate d)voltage rate.

10.How is baud rate supplied? a)baud rate voltage b)external timer c)peripheral d)internal timer

11.Which is the most commonly used UART? a)8253 b)8254 c)8259

12.Which of the following technique is used by the UNIX operating system? a)logical address memory b)physical address memory c)virtual memory technique d)translational address
13.Which of the following consist two lines of legs on both sides of a plastic or ceramic body? a)SIMM b)DIMM c)Zig-zag d)Dual in-line

14.Which of the following can transfer multiple bits of datasimultaneously?a)serialportb)sequentialportc)concurrentunitd)parallel.

15.Which of the following are interfaced as the outputs to the parallel ports? a)keyboards b)switches c)LEDs d)knobs

16.Which of the following memories has more speed in accessing data? a)SRAM b)DRAM c)EPROM d)EEPROM

17.In which memory, the signals are multiplexed? a)DRAM b)SRAM c)EPROM d)EEPROM

18.How many main signals are used with memory chips? a)2 b)4 c)6 d)8

19.What is the purpose of address bus? a)to provide data to and from the chip b)to select a specified chip c)to select a location within the memory chip d)to select a read/write cycle.50.Which are the two main types of processor connection to the mother board? a)sockets and slots b)sockets and pins c)slots and pins d)pins and ports

20.Pick out the advantage of IC a) Smaller physical size b) Low power consumption c) Reduced cost d) All
21. In the MOSFET, as width of channel increases Idb a) Increases b) decreases c) Constant d) none
22. Latch –up is caused bya) Parasitic R b) Parasitic BJT's c) (a) & (b) d) Parasitic C
23. Pick up latch-up resistant CMOS process a) n well b) p well c) silicon on Insulator d) all
24. Cascaded inverters are used to drive large _____ loads a) Capacitive b) resistive c) inductive d) all
25. In which process (CMOS) pFETs are embedded in n well a) p well b) n well c) SOI d) all
26. In the Pseudo-nMOS logic ----------transistor is used as pull-up resistor a)pMOS b) nMOS c) Bipolar d) Unijunction
27. Latch structure is used in ----------Logic a)Pseudo-nMOS b) DCVS c) Domino d) all
28. Routing channel is spacing between a)cell rows b) cells c) wires d) None
29. Feed throughs are used during[]a)Placement b) Routing c) Floor planning d) Synthesis

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30. For n-type transistor threshold voltage is _____ a) Positive b) negative c) zero d) none

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ANSWER KEY:-ARTIFICIAL INTELLIGENCE USIING RASBERRY-PI(2017-18)

1)b 2)a 3)b 4)c 5)c 6)c 7)a 8)d 9)b 10)c

11)c 12)a 13)a 14)a 15)b 16)c 17)b 18)a 19)b 20)b

21)c 22)a 23)b 24)a 25)b26)b 27)a 28)a 29)b 30)a

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Pampady, Thiruvilwamala, Thrissur Dt.

Attendance Sheet for Certificate Course"AI USING RABERRY-PI "

Electronics & Communication Engineering(UG) - (2016-17)Batch

		30
NCE15EC001	A Sneha	22
NCE15EC003	Adhwaltha M	23
NCE15EC004	Aisha Ismail	24
NCE15EC005	Aiswarya Muthu	24
NCE15EC006	Aiswarya V	21
NCE15EC007	Aiswarya Vijayan P	24
NCE15EC008	Ajay Kumar P V	23
NCE15EC009	Aleesha Hameed	23
NCE15EC010	Alphy Joseph	22
NCE15EC011	Alwin Cherian	23
NCE15EC013	Amrutha Raghunath	20
NCE15EC014	Amrutha Vijayan	23
NCE15EC015	Anand R Menon	23
NCE15EC016	Anisha D A	22
NCE15EC017	Anitha K	25
NCE15EC018	Ankitha S	26
NCE15EC019	Anlee Thattil	25
NCE15EC020	Aparna Renny Paul	21
NCE15EC021	Aparnna K S	23
NCE15EC022	Aravind R	23
NCE15EC023	Arya A	22
NCE15EC024	Ashwathy Dinesh Menon	21
NCE15EC025	Aswathy M S	22
NCE15EC026	Aswin A	25
NCE15EC027	Athira C	26
NCE15EC028	Athira Karuvaladi	21

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NCE16ECS029	Athira S	23
NCE19ECS030	Bebin S	25
NCA08ECS085	Sneha K	25
NCA08ECS201	Sneha Vs	21
NCE16ECS003	Aiswarla R	25
NCE16ECS005	Aiswarya Swamy	22
NCE16ECS006	Aiswarya T	21
NCE16ECS004	Aiswarya k	22
NCE16ECS007	Ajay C	21
NCE16ECS008	Akhila B	24
NCE16ECS009	Akhila P	22
NCC16ECS010	Akshaya V M	21
NCE16ECS012	Anaswara k	22
NCE16ECS013	Aneesha Prasad	23
NCE16ECS014	Angel Krishnan	20
NCE16ECS015	Anshima Raj Ep	22
NCE16ECS016	Anslya P A	23
NCE16ECS017	Aparna p p	24
NCE16ECS018	Aswani m.u	25
NCE16ECS019	Athul Gopinath	26
NCE16ECS020	Athul P.s	25
NCE16ECS021	Binzila V	25
NCE16ECS025	D Dharshana	23
NCE16ECS022	Devisree D	23
NCE16ECS023	Dhanushya M	22
NCE16ECS026	Fasna Yasmin	23
NCE16ECS027	Fathima Shibila	22
NCE16ECS029	Haleema H	25
NCE16ECS030	[illegible]	26
NCE16ECS031	[illegible]	22
NCE16ECS032	[illegible]	23
NCE16ECS033	[illegible]	25
NCA08ECS[illegible]	[illegible]	25

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NCAOEEC057	Madhav Raj P	22
NCAOEEC058	Malavika M.s	25
NCAOEEC059	Manjunath V	22
NCAOEEC060	Manu K.m	21
NCAOEEC062	Mubsira. A	22
NCAOEEC063	Muthukumaran N.k	21
NCAOEEC064	Nayana K	24
NCAOEEC065	Nidhi S Nair	22
NCAOEEC066	Nikhil Kizhiyapat	21
NCAOEEC067	Nimisha P.n	22
NCAOEEC068	Nithuna S	23
NCAOEEC069	Nuaaman	20
NCAOEEC070	Parvathi Dinesh	22
NCAOEEC071	Radhika P.t	23
NCAOEEC072	Rahana K.m	24
NCAOEEC073	Rinza Fathima Z	25
NCAOEEC074	Roshna V C	26
NCAOEEC075	Sachinma M	25
NCAOEEC076	Sanfiya S	25
NCAOEEC077	Sangeetha S	23
NCAOEEC078	Sanjiv K	23
NCAOEEC079	Saranya C	22
NCAOEEC080	Sethupriyan	23
NCAOEEC081	Shahana A	22
NCAOEEC082	Shahul Hameed	25
NCAOEEC083	Sharon S	26
NCAOEEC084	Shima A.m	22
NCAOEEC085	Sneha K	23
NCAOEEC103	Sneha Vs	22

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Certificate of Recognition

This certificate is awarded to

NCEISEC016 (ANISHA O A)

for completing Addon course on AI USING RASBERRY - PI
from 11/8/2017 to 11/10/17 conducted by ECE
Dept NCERC, Pampady

COURSE COODINATOR

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ANANDHU S (NCES19ECE011)

for completing Addon course on "AI USING RASPBERRY-PI"
from 1/3/23 to 4/10/23 conducted by ECE
Dept NCERC, Pampady

COURSE COODINATOR

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This certificate is awarded to

ATHIRA C (CNCELS EC027)

for completing Addon course on 'AI USING RASPBERRY PI'
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VISHNU RAVIDAS (NCELSEC083)

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This certificate is awarded to

LNCE15EC037 (VISHNU U)

for completing Addon course on 'AI USING RASPBERRY-PI'
from 14/8/17 to 11/10/17 conducted by ECE
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PAMPADY, THIRUVILWAMALA, THRISSUR DIST.

ADD ON/CERTIFICATE COURSE ON AI USING RASBERRY -PI

DEPARTMENT OF ELECTRONICS AND COMMUNICATION is welcoming all students of ECE department to attend an ADD ON/CERTIFICATE Course on 'AI USING RASBERRY-PI' starting from 05-08-2017. All students of 2016-20 batch (U.G) are eligible to attend this course. The course will enhance the knowledge level of students in programming and understanding of digital circuits .

Course coordinator:-Mr Muruganantham C(Asst Prof.ECE Dept,NCERC)

Starting date:-05-08-2017

Ending date:-06-10-2017

Duration:- 30 hours

An objective type exam will be conducted after the completion of classes

Students obtaining a minimum of 50 percent marks in the exam will be provided with the course certificate on behalf of NEHRU COLLEGE OF ENGINEERING AND RESEARCH CENTRE PAMPADY, THRISSUR.

Exam Date:-09-10-2017

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Mechatronics Engineering

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ADMISSION TO CERTIFICATION COURSE (2017-2018)

Applications are invited for admission for the Certification Course 'WIRELESS COMMUNICATION' offered by the Department of Mechatronics Engineering, Nehru college of Engineering and Research Centre, Pampady, Thrissur.

Eligibility criteria

All UG engineering students of MTR Department are eligible

Timing:

1 hour per day from 4.00pm to 5.00pm for 30 hours of the course. Saturday and Sunday may be used at the discretion of the department.

Attendance

A minimum of 75% attendance is required for writing the examination.

Important Dates

Commencement of classes: 21-08-2017

Examination Date: 10-11-2017

HOD

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FROM

MR. ANTONY RICHARD

ASSISTANT PROFESSOR

MTR DEPARTMENT, NCERC PAMPADY

TO

HEAD OF THE DEPARTMENT

MTR DEPARTMENT

NCERC PAMPADY

SUBJECT: Requisition for conducting Certification Course on "WIRELESS COMMUNICATION".

Respected Sir,

As the Assistant Professor of Mechatronics Engineering, I would like to request your support and permission to conduct a Certification Course on "WIRELESS COMMUNICATION" from 21-08-2017. It will be a 30 hour course scheduled for July to October of this academic year 2017-2018. It is therefore important for students to have a deep understanding of upcoming methodologies to enhance knowledge dissemination to students for doing projects.

All UG Engineering students of MTR Department are eligible for this course.

Sincerely,

Antony

PLACE: PAMPADY

DATE: 29/7/17

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Pin 680 597 Kerala

FROM

MR. ANTONY RICHARD

ASSISTAANT PROFESSOR

MTR DEPARTMENT, NCERC PAMPADY

Forwarded to Principal.

TO

THE PRINCIPAL,

NCERC PAMPADY

Through HOD

Respected Mam,

SUBJECT: Requisition for conducting Certification Course on "WIRELESS COMMUNICATION" Reg.

Students need a deep understanding of upcoming methodologies to enhance knowledge dissemination for doing projects. Wireless communication involves the transmission of information over a distance without the help of wires, cables or any other forms of electrical conductors, so Mechatronics Engineering department would like to conduct a Certification Course on "WIRELESS COMMUNICATION" from 21-08-2017. It will be a 30 hour course scheduled for July to October of this academic year 2017-2018. Kindly request you to give the permission for the same.

All UG Engineering students of MTR Department are eligible for this course.

Sincerely,

Antony

PLACE: Pampady

DATE: 1/8/17

NEHRU COLLEGE OF ENGINEERING & RESEARCH CENTRE PAMPADY THIRUVILWAMALA THRISSUR DT.

permitted

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ADD ON COURSE SYLLABUS AND SCHEDULE

Since 1968

WIRELESS COMMUNICATION

OBJECTIVES:

- To study the characteristic of wireless channel
- To understand the design of a cellular system
- To study the various digital signaling techniques and multipath mitigation techniques
- To understand the concepts of multiple antenna techniques

UNIT I WIRELESS CHANNELS

Large scale path loss – Path loss models: Free Space and Two-Ray models -Link Budget design – Small scale fading- Parameters of mobile multipath channels – Time dispersion parameters-Coherence bandwidth – Doppler spread & Coherence time, fading due to Multipath time delay spread – flat fading – frequency selective fading – Fading due to Doppler spread – fast fading – slow fading.

UNIT II CELLULAR ARCHITECTURE

Multiple Access techniques – FDMA, TDMA, CDMA – Capacity calculations–Cellular concept- Frequency reuse – channel assignment- hand off- interference & system capacitytrunking & grade of service – Coverage and capacity improvement.

UNIT III DIGITAL SIGNALING FOR FADING CHANNELS

Structure of a wireless communication link, Principles of Offset-QPSK, p/4-DQPSK, Minimum Shift Keying, Gaussian Minimum Shift Keying, Error performance in fading channels, OFDM principle – Cyclic prefix, Windowing, PAPR.

UNIT IV MULTIPATH MITIGATION TECHNIQUES

Equalisation – Adaptive equalization, Linear and Non-Linear equalization, Zero forcing and LMS Algorithms. Diversity – Micro and Macro diversity, Diversity combining techniques, Rake receiver. MIMO systems – spatial multiplexing -System model -Pre-coding – Beam forming – Channel state information-capacity in fading and non-fading channels.

COURSE SCHEDULE

Commencement of classes: 21-08-2017

Examination Date: 10-11-2017

PROGRAM COORDINATOR **HOD**

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DEPARTMENT OF MECHATRONICS ENGINEERING

WIRELESS COMMUNICATION

Attendance Sheet

SL. NO.	REG. NO.	NAME OF STUDENT	26/8/17	26/8/17	27/8/17	27/8/17	9/9/17	9/9/17	16/9/17	16/9/17	16/9/17	16/9/17
1	NCAOEMT001	AAZTLEKHAN N	/	/	a	a	/	/	/	/	/	/
2	NCAOEMT002	ABDULLA NAJID C P	a	/	/	/	/	/	/	a	/	/
3	NCAOEMT003	ABHIJITH JOHN	/	/	/	/	/	a	/	/	/	/
4	NCAOEMT004	ABY POIUSON	/	a	/	/	/	/	/	/	/	a
5	NCAOEMT005	ADARSH MOHAN	/	/	/	/	/	/	a	/	/	/
6	NCAOEMT006	AISWARYA UNNI	a	/	/	/	a	/	/	/	/	/
7	NCAOEMT007	AJAY AUGUSTINE	/	/	/	a	/	/	a	/	/	/
8	NCAOEMT019	ARUN RAJ K	a	/	/	/	/	/	/	/	/	a
9	NCAOEMT020	ASHIK HAMEED SHA A P	/	/	/	/	/	/	a	/	/	/
10	NCAOEMT021	ATHUL AJITH	/	/	a	/	a	/	/	/	/	/
11	NCAOEMT022	BASIL T ABRAHAM	/	/	/	/	/	a	/	/	a	/
12	NCAOEMT023	DERVISH HUSSAIN V	/	/	/	/	/	/	/	/	a	/
13	NCAOEMT024	EDWIN JOHNY	/	a	/	/	/	/	/	a	/	/
14	NCAOEMT035	JERIN T SUNNY	/	/	/	a	/	/	/	/	/	a
15	NCAOEMT036	JESEERA V P	/	/	/	/	/	a	/	/	/	/
16	NCAOEMT037	JINO G THOMAS	/	/	a	/	/	/	/	a	/	/
17	NCAOEMT038	JINU P M	a	/	/	/	/	/	/	/	/	a
18	NCAOEMT039	JITHIN JOSE	/	a	/	/	/	/	/	/	/	/
19	NCAOEMT040	JOHN JOE PADUA	/	/	a	/	/	/	a	/	/	a
20	NCAOEMT041	KAKKAT ALI IBRAHIM	/	/	/	a	/	/	/	/	a	/
21	NCAOEMT046	RASHAF ALI K	/	/	/	/	/	a	/	/	/	/
22	NCAOEMT047	ROSHAN R S	a	/	/	/	/	/	/	/	/	/
23	NCAOEMT048	SAFVAN	/	a	/	/	a	/	/	/	/	/
24	NCAOEMT049	SAJITH V	/	/	a	/	/	/	/	/	/	/
25	NCAOEMT050	SALMAN V S	/	/	/	/	/	a	/	/	/	/
26	NCAOEMT051	SARANG P	/	/	/	/	/	/	/	a	a	/
27	NCAOEMT052	SAWAD K J	/	/	/	/	/	/	a	/	/	a
28	NCAOEMT053	SETHUMADHAVAN K	/	a	/	/	/	/	/	/	a	/

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29	NCE15MC001	ABHIJITH DINESH	/	/	a	/	a	/	/	/	a	/		
30	NCE15MC002	ABIJITH U K	/	/	/	a	/	/	/	/	/	a		
31	NCE15MC003	ADITHYA SURESH	/	/	/	/	/	a	/	/	/	a		
32	NCE15MC004	ADITHYA MOHAN	/	/	/	/	/	/	/	a	a	/		
33	NCE15MC005	AJAY ANAND C	/	/	/	/	/	/	a	/	/	/		
34	NCE15MC006	AKASH A	a	a	/	/	/	/	/	/	/	/		
35	NCE15MC007	AKHIL CHAND P P	/	/	/	a	/	a	/	/	/	/		
36	NCE15MC008	AKSHAYLAL M R	/	/	a	/	/	/	/	/	/	a		
37	NCE15MC009	ALBIN LEO	/	/	/	/	/	/	a	/	/	/		
38	NCE15MC010	ALIND ROY	/	/	/	/	/	a	/	/	/	/		
39	NCE15MC011	AMARJITH VINOD	a	/	a	/	/	/	/	/	/	/		
40	NCE15MC012	ANTONY SEBASTIAN KACHAPALLY	a	/	/	/	/	/	/	/	/	a		
41	NCE15MC013	ANUPAMA R NATH	/	/	/	/	a	/	/	/	/	/		
42	NCE15MC014	ARJUN S	/	/	/	a	/	/	/	/	a	/		
43	NCE15MC015	ATHIRA MENON	/	/	/	/	/	a	/	/	/	a		
44	NCE15MC036	MOHAMMED HANI SHERIF	/	/	/	/	/	/	a	a	/	/		
45	NCE15MC037	MOHAMED JUNAID M C	a	a	/	/	/	/	/	/	/	/		
46	NCE15MC038	MOHAMED SHAROOK KHAN	/	/	a	/	/	/	/	/	a	/		
47	NCE15MC040	MOHAMMED SUHAIL T S	/	/	/	a	/	/	/	/	/	a		
48	NCE15MC041	MUHAMMED NAMEER P	/	/	/	/	/	a	/	/	/	/		
49	NCE15MC042	NAKUL BHASKAR	/	/	/	/	/	/	/	/	/	a		
50	NCE15MC043	NIRMAL C RAVINDRAN	/	a	/	/	/	/	/	/	/	/		
51	NCE15MC050	SAGAR JOHNY C	/	/	/	/	/	/	/	a	/	/		
52	NCE15MC051	SARAS MOHAN	/	/	a	/	/	/	/	/	/	/		
53	NCE15MC052	SARUN R KUMAR	a	/	/	/	/	/	/	a	/	a		
54	NCE15MC053	SPENCER DAVID	/	/	/	a	/	/	/	/	/	/		
55	NCE15MC054	SREEJITH S	/	/	/	/	/	a	/	/	/	/		
56	NCE15MC055	SREERAG K R	/	/	/	a	/	/	/	/	/	a		
57	NCE15MC056	SUDHARSHAN K	/	/	/	/	/	a	/	/	a	a		
58	LNCE15MC067	DHEERAJ S	/	/	/	/	/	a	a	a	a	/		
59	LNCE15MC068	JAYAKRISHNAN A R	/	/	/	/	a	/	/	/	/	/		
60	LNCE15MC069	JOBIN JOSEPH	/	a	/	a	/	/	/	/	/	/		
61	LNCE15MC070	SREEVINAYAK P V	a	/	/	/	/	/	a	/	/	/		
62	NCE16MC038	SANJAY S	a	/	/	/	/	/	/	/	/	/		

NEHRU COLLEGE OF ENGINEERING & RESEARCH CENTRE THIRUVILWAMALA PALAKKAD

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Pin 680 597 Kerala

63	NCE16MC039	SHAHID S	/	/	a	/	/	/	/	/	/	/	a
64	NCE16MC040	SHAROOQUE SHAJAHAN	/	/	/	/	/	a	a	/	/	/	/
65	NCE16MC041	SIDHARTH S	a	/	/	a	/	/	/	/	/	/	/
66	NCE16MC042	SIMON THOMAS	/	/	a	/	/	/	/	/	/	/	/
67	NCE16MC043	SMRUTHI RANJITH	a	/	/	/	/	a	/	/	/	/	/
68	NCE16MC044	SREEHARI K NAIR	/	/	/	/	/	/	/	/	/	a	a
69	NCE16MC045	SUMITH P S	/	/	/	/	/	a	/	/	/	/	a
70	NCE17MC001	Akhilesh N S	/	a	/	/	/	a	/	/	/	/	a
71	NCE17MC002	Anas Mohammed Ali	/	/	/	a	a	/	/	/	/	/	/
72	NCE17MC003	Ashish Babu	/	/	/	/	/	/	/	a	/	/	/
73	NCE17MC004	Athul S	/	/	/	/	/	/	/	a	a	/	/
74	NCE17MC005	Jees Johnichan	/	/	a	/	/	/	/	/	/	/	a
75	NCE17MC006	Mohamed Asarudheen S	/	a	/	/	/	/	/	a	/	/	/
76	NCE17MC007	Mrudul Mohandas A	a	/	/	/	/	/	/	a	/	/	/

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DEPARTMENT OF MECHATRONICS ENGINEERING

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Attendance Sheet

SL. NO.	REG. NO.	NAME OF STUDENT	17/9/17	17/9/17	23/9/17	23/9/17	24/9/17	24/9/17	7/10/17	7/10/17	8/10/17	8/10/17
1	NCAOEMT001	AAZTLEKHAN N	/	/	/	/	a	/	a	/	/	a
2	NCAOEMT002	ABDULLA NAJID C P	/	a	/	/	a	/	/	/	a	/
3	NCAOEMT003	ABHIJITH JOHN	a	/	/	/	/	/	/	a	/	/
4	NCAOEMT004	ABY POIUSON	/	/	a	/	/	/	a	/	/	/
5	NCAOEMT005	ADARSH MOHAN	/	a	/	a	/	/	/	/	/	a
6	NCAOEMT006	AISWARYA UNNI	/	/	/	/	/	a	/	/	/	a
7	NCAOEMT007	AJAY AUGUSTINE	/	/	/	/	a	/	/	/	/	/
8	NCAOEMT019	ARUN RAJ K	/	/	/	/	/	/	a	/	/	/
9	NCAOEMT020	ASHIK HAMEED SHA A P	/	/	/	a	/	/	/	/	/	/
10	NCAOEMT021	ATHUL AJITH	/	a	/	a	/	/	/	/	/	/
11	NCAOEMT022	BASIL T ABRAHAM	/	/	/	/	/	/	a	a	a	/
12	NCAOEMT023	DERVISH HUSSAIN V	/	/	/	/	/	/	/	a	/	a
13	NCAOEMT024	EDWIN JOHNY	/	/	/	a	/	/	/	/	/	/
14	NCAOEMT035	JERIN T SUNNY	a	/	a	/	/	/	/	/	/	/
15	NCAOEMT036	JESEERA V P	a	/	/	/	/	/	/	/	/	/
16	NCAOEMT037	JINO G THOMAS	a	/	/	/	a	/	/	/	/	/
17	NCAOEMT038	JINU P M	/	a	/	/	/	/	/	a	/	/
18	NCAOEMT039	JITHIN JOSE	a	/	/	a	/	/	/	/	/	/
19	NCAOEMT040	JOHN JOE PADUA	/	/	/	/	/	a	/	/	a	/
20	NCAOEMT041	KAKKAT ALI IBRAHIM	/	a	/	/	/	/	a	/	/	/
21	NCAOEMT046	RASHAF ALI K	/	/	a	/	a	/	/	/	/	/
22	NCAOEMT047	ROSHAN R S	/	/	/	/	/	a	/	/	/	/
23	NCAOEMT048	SAFVAN	/	a	/	/	/	/	/	a	/	a
24	NCAOEMT049	SAJITH V	/	/	/	a	/	/	/	/	/	/
25	NCAOEMT050	SALMAN V S	a	/	/	/	/	/	/	/	a	/
26	NCAOEMT051	SARANG P	/	a	/	/	/	a	/	/	/	/
27	NCAOEMT052	SAWAD K J	/	/	a	/	/	/	/	/	/	/
28	NCAOEMT053	SETHUMADHAVAN K	/	/	/	/	/	/	a	/	/	/

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29	NCE15MC001	ABHIJITH DINESH	/	a	/	/	/	/	/	/	a	/
30	NCE15MC002	ABIJITH U K	a	/	/	/	a	/	/	/	/	/
31	NCE15MC003	ADITHYA SURESH	/	a	/	a	/	/	a	/	/	/
32	NCE15MC004	ADITHYA MOHAN	a	/	/	/	/	/	/	/	/	a
33	NCE15MC005	AJAY ANAND C	/	/	a	/	/	a	/	/	/	/
34	NCE15MC006	AKASH A	/	/	/	a	/	a	/	a	/	/
35	NCE15MC007	AKHIL CHAND P P	a	/	a	/	/	/	/	/	/	/
36	NCE15MC008	AKSHAYLAL M R	/	/	/	/	/	/	/	/	a	a
37	NCE15MC009	ALBIN LEO	/	/	/	/	/	a	/	a	/	/
38	NCE15MC010	ALIND ROY	/	/	a	/	a	/	/	/	/	/
39	NCE15MC011	AMARJITH VINOD	a	/	/	/	/	/	/	a	/	/
40	NCE15MC012	ANTONY SEBASTIAN KACHAPALLY	/	a	/	/	/	/	a	/	/	/
41	NCE15MC013	ANUPAMA R NATH	/	/	/	/	/	a	/	/	/	/
42	NCE15MC014	ARJUN S	/	/	a	a	a	/	/	/	/	/
43	NCE15MC015	ATHIRA MENON	/	/	/	/	/	/	/	/	a	/
44	NCE15MC036	MOHAMMED HANI SHERIF	/	a	/	/	/	/	/	/	/	a
45	NCE15MC037	MOHAMED JUNAID M C	a	/	/	/	/	/	/	/	/	/
46	NCE15MC038	MOHAMED SHAROOK KHAN	a	/	a	/	/	/	/	/	/	/
47	NCE15MC040	MOHAMMED SUHAIL T S	/	/	/	/	/	a	/	a	/	/
48	NCE15MC041	MUHAMMED NAMEER P	/	/	a	/	a	/	/	/	/	/
49	NCE15MC042	NAKUL BHASKAR	/	/	/	/	/	a	/	a	/	/
50	NCE15MC043	NIRMAL C RAVINDRAN	/	a	/	/	/	/	a	/	/	/
51	NCE15MC050	SAGAR JOHNY C	/	/	a	a	/	/	/	/	/	/
52	NCE15MC051	SARAS MOHAN	/	/	/	/	/	/	/	/	/	/
53	NCE15MC052	SARUN R KUMAR	a	/	/	a	/	/	/	/	/	/
54	NCE15MC053	SPENCER DAVID	/	/	/	/	/	/	a	a	/	/
55	NCE15MC054	SREEJITH S	/	/	/	/	a	/	/	/	/	a
56	NCE15MC055	SREERAG K R	/	a	a	/	/	/	/	/	/	/
57	NCE15MC056	SUDHARSHAN K	a	/	/	/	/	a	/	/	/	a
58	LNCE15MC067	DHEERAJ S	/	a	/	/	/	/	a	/	/	/
59	LNCE15MC068	JAYAKRISHNAN A R	a	/	a	/	a	/	/	/	/	/
60	LNCE15MC069	JOBIN JOSEPH	/	a	/	/	/	/	/	/	a	/
61	LNCE15MC070	SREEVINAYAK P V	/	/	/	a	/	/	a	/	/	a
62	NCE16MC038	SANJAY S	a	/	/	/	/	a	/	/	a	/

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63	NCE16MC039	SHAHID S	/	a	/	/	/	/	a	/	/	/
64	NCE16MC040	SHAROOQUE SHAJAHAN	/	/	a	/	/	/	/	/	/	/
65	NCE16MC041	SIDHARTH S	/	/	/	/	a	/	/	/	/	/
66	NCE16MC042	SIMON THOMAS	a	a	/	/	/	/	/	/	/	/
67	NCE16MC043	SMRUTHI RANJITH	/	/	/	/	/	/	a	a	/	/
68	NCE16MC044	SREEHARI K NAIR	/	/	/	/	a	/	/	/	/	a
69	NCE16MC045	SUMITH P S	/	a	a	a	/	/	/	/	/	/
70	NCE17MC001	Akhilesh N S	/	/	/	/	/	a	/	a	/	/
71	NCE17MC002	Anas Mohammed Ali	a	/	/	/	/	/	a	/	/	/
72	NCE17MC003	Ashish Babu	/	a	/	/	/	/	/	/	a	/
73	NCE17MC004	Athul S	/	/	/	a	a	a	/	/	/	/
74	NCE17MC005	Jees Johnichan	/	a	a	a	/	/	/	/	/	/
75	NCE17MC006	Mohamed Asarudheen S	/	/	/	/	/	/	a	/	/	a
76	NCE17MC007	Mrudul Mohandas A	a	/	/	/	/	/	/	/	a	/

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DEPARTMENT OF MECHATRONICS ENGINEERING

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Attendance Sheet

SL. NO.	REG. NO.	NAME OF STUDENT	14/10/17	15/10/17	15/10/17	21/10/17	21/10/17	22/10/17	22/10/17	28/10/17	29/10/17	29/10/17
1	NCAOEMT001	AAZTLEKHAN N	/	a	/	/	/	/	a	/	/	a
2	NCAOEMT002	ABDULLA NAJID C P	a	/	/	a	/	/	/	/	/	/
3	NCAOEMT003	ABHIJITH JOHN	/	/	a	/	/	/	/	/	a	/
4	NCAOEMT004	ABY POIUSON	a	/	/	/	/	a	/	/	/	/
5	NCAOEMT005	ADARSH MOHAN	/	a	a	a	/	/	/	/	/	/
6	NCAOEMT006	AISWARYA UNNI	a	/	/	/	/	/	/	/	/	a
7	NCAOEMT007	AJAY AUGUSTINE	/	/	/	/	a	a	/	/	/	/
8	NCAOEMT019	ARUN RAJ K	/	a	a	/	/	/	/	/	/	/
9	NCAOEMT020	ASHIK HAMEED SHA A P	a	/	/	/	/	/	/	a	/	/
10	NCAOEMT021	ATHUL AJITH	/	/	/	a	/	/	/	/	a	/
11	NCAOEMT022	BASIL T ABRAHAM	/	a	/	/	/	/	a	/	/	/
12	NCAOEMT023	DERVISH HUSSAIN V	/	/	/	/	a	/	/	/	/	a
13	NCAOEMT024	EDWIN JOHNY	a	/	/	/	/	/	/	a	/	/
14	NCAOEMT035	JERIN T SUNNY	/	/	a	/	/	a	/	/	/	/
15	NCAOEMT036	JESEERA V P	/	/	/	a	/	/	/	/	a	/
16	NCAOEMT037	JINO G THOMAS	/	/	/	/	/	/	a	a	/	/
17	NCAOEMT038	JINU P M	a	/	/	/	/	/	/	/	/	/
18	NCAOEMT039	JITHIN JOSE	/	/	a	/	/	a	/	/	/	/
19	NCAOEMT040	JOHN JOE PADUA	/	a	/	/	/	/	/	/	/	a
20	NCAOEMT041	KAKKAT ALI IBRAHIM	/	/	/	a	/	/	a	/	/	/
21	NCAOEMT046	RASHAF ALI K	a	/	/	/	a	/	/	/	/	/
22	NCAOEMT047	ROSHAN R S	/	a	/	/	/	a	/	/	/	/
23	NCAOEMT048	SAFVAN	/	/	a	/	/	/	/	a	/	/
24	NCAOEMT049	SAJITH V	/	/	/	a	a	/	/	/	/	/
25	NCAOEMT050	SALMAN V S	a	/	/	/	/	a	/	/	/	/
26	NCAOEMT051	SARANG P	/	a	/	/	/	/	/	/	a	/
27	NCAOEMT052	SAWAD K J	/	/	a	/	/	/	a	/	/	/
28	NCAOEMT053	SETHUMADHAVAN K	/	a	/	/	/	/	/	/	/	a

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29	NCE15MC001	ABHIJITH DINESH	/	a	/	/	a	/	/	/	/	/		
30	NCE15MC002	ABIJITH U K	a	/	/	/	/	/	a	/	/	/		
31	NCE15MC003	ADITHYA SURESH	/	/	a	a	a	/	/	/	/	/		
32	NCE15MC004	ADITHYA MOHAN	a	/	/	/	/	a	/	/	/	/		
33	NCE15MC005	AJAY ANAND C	/	a	/	/	/	/	/	/	a	a		
34	NCE15MC006	AKASH A	/	/	/	/	/	/	/	a	/	a		
35	NCE15MC007	AKHIL CHAND P P	/	/	/	a	/	/	/	/	/	/		
36	NCE15MC008	AKSHAYLAL M R	/	/	/	/	/	/	a	/	/	/		
37	NCE15MC009	ALBIN LEO	a	/	/	/	/	/	/	/	/	a		
38	NCE15MC010	ALIND ROY	/	/	a	/	/	/	/	/	/	/		
39	NCE15MC011	AMARJITH VINOD	/	a	/	/	a	/	/	/	/	/		
40	NCE15MC012	ANTONY SEBASTIAN KACHAPALLY	/	/	/	/	/	a	/	/	a	/		
41	NCE15MC013	ANUPAMA R NATH	/	a	/	a	/	/	/	a	/	/		
42	NCE15MC014	ARJUN S	/	/	/	/	/	/	a	a	/	/		
43	NCE15MC015	ATHIRA MENON	a	/	/	/	/	/	/	/	/	a		
44	NCE15MC036	MOHAMMED HANI SHERIF	/	/	a	/	/	/	/	/	a	/		
45	NCE15MC037	MOHAMED JUNAID M C	/	/	/	/	a	/	a	/	/	/		
46	NCE15MC038	MOHAMED SHAROOK KHAN	/	a	/	/	/	/	/	/	/	a		
47	NCE15MC040	MOHAMMED SUHAIL T S	/	/	/	a	/	/	/	a	/	/		
48	NCE15MC041	MUHAMMED NAMEER P	a	/	/	/	a	/	/	/	/	/		
49	NCE15MC042	NAKUL BHASKAR	/	a	a	/	/	/	/	/	/	/		
50	NCE15MC043	NIRMAL C RAVINDRAN	/	/	/	/	/	a	a	a	/	/		
51	NCE15MC050	SAGAR JOHNY C	/	/	/	/	/	/	/	/	/	/		
52	NCE15MC051	SARAS MOHAN	a	/	/	/	a	/	/	/	/	/		
53	NCE15MC052	SARUN R KUMAR	/	a	/	/	/	/	/	/	a	/		
54	NCE15MC053	SPENCER DAVID	/	/	a	/	/	/	/	/	/	/		
55	NCE15MC054	SREEJITH S	/	/	/	/	a	/	/	/	/	/		
56	NCE15MC055	SREERAG K R	a	a	/	/	/	/	/	/	/	/		
57	NCE15MC056	SUDHARSHAN K	/	/	/	a	/	/	a	/	/	/		
58	LNCE15MC067	DHEERAJ S	/	/	/	/	/	/	/	/	a	/		
59	LNCE15MC068	JAYAKRISHNAN A R	/	/	a	/	/	/	/	/	/	/		
60	LNCE15MC069	JOBIN JOSEPH	/	/	/	/	/	a	/	a	/	/		
61	LNCE15MC070	SREEVINAYAK P V	a	/	/	/	/	/	/	/	/	a		
62	NCE16MC038	SANJAY S	/	/	/	/	a	a	a	/	/			

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63	NCE16MC039	SHAHID S	/	a	/	/	/	/	/	/	/	/	
64	NCE16MC040	SHAROOQUE SHAJAHAN	/	/	/	/	a	/	a	/	/	/	
65	NCE16MC041	SIDHARTH S	/	/	/	/	/	/	/	/	/	a	
66	NCE16MC042	SIMON THOMAS	/	/	/	/	/	/	/	/	a	a	
67	NCE16MC043	SMRUTHI RANJITH	/	/	a	/	/	/	/	/	a	/	
68	NCE16MC044	SREEHARI K NAIR	/	/	/	a	/	/	/	a	/	a	
69	NCE16MC045	SUMITH P S	/	/	/	/	/	/	/	/	a	/	
70	NCE17MC001	Akhilesh N S	a	/	/	/	/	/	/	a	/	/	
71	NCE17MC002	Anas Mohammed Ali	/	a	/	/	/	/	/		/	/	
72	NCE17MC003	Ashish Babu	/	/	/	/	/	/	/	a	/	/	
73	NCE17MC004	Athul S	/	/	/	a	/	/	/	/	/	/	
74	NCE17MC005	Jees Johnichan	/	/	/	/	/	a	a	/	/	/	
75	NCE17MC006	Mohamed Asarudheen S	/	a	/	/	/	/	/	/	/	/	
76	NCE17MC007	Mrudul Mohandas A	/	/	/	/	/	/	a	/	/	/	

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ADD ON COURSE ANSWER KEY

Since 1968

WIRELESS COMMUNICATION

1. A
2. B
3. C
4. B
5. D
6. A
7. B
8. A
9. C
10. B
11. D
12. C
13. A
14. B
15. A
16. B
17. A
18. C
19. D
20. A
21. A
22. B
23. B
24. C
25. A
26. B
27. A
28. D
29. D
30. A
31. B
32. D
33. B
34. C
35. B
36. A

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37. B
38. C
39. B
40. B
41. D
42. A
43. B
44. A
45. D
46. A
47. B
48. D
49. C
50. A



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ARJUN S
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CERTIFICATION COURSE QUESTION PAPER

Since 1968

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10/100

1. Which of the following is not a source of interference?
a) Base station in different cluster
b) Another mobile in same cell
c) A call in progress in neighbouring cell
d) Any BS operating on same frequency

2. Interference on voice channels causes _____
a) Blocked calls
b) Cross talk
c) Queuing
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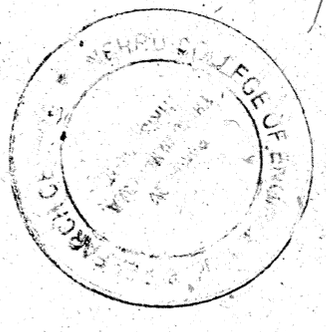
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Mohammed Hani Sherif
NCE15MC036

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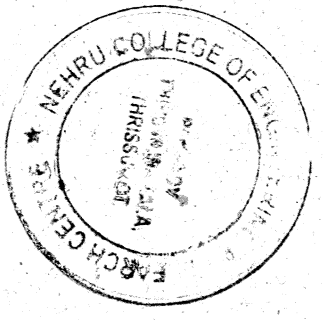
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c) Duplex
d) Expensive

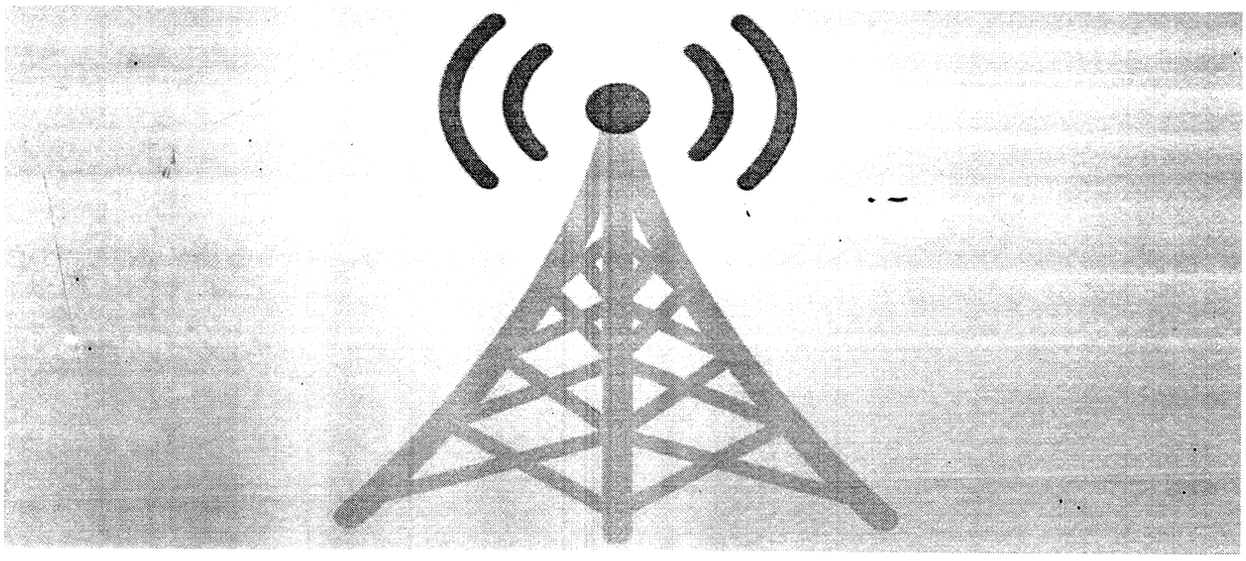
50. CDPD transmissions are carried out using _____ blocks.
a) Fixed length
b) Variable length
c) Long
d) Short

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(Approved by AICTE, Affiliated to APJAKTU & Calicut University, Kerala)
ACADAMIC YEAR (2017-18)

DEPARTMENT OF MECHATRONICS ENGINEERING
OFFERING CERTIFIED COURSE ON

WIRELESS COMMUNICATION



COURSE POINTS

- ✓ WIRELESS CHANNELS
- ✓ CELLULAR ARCHITECTURE
- ✓ DIGITAL SIGNALING FOR FADING CHANNELS
- ✓ MULTIPATH MITIGATION TECHNIQUES

FACULTY

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Certificate OF COMPLETION

.....ABHIJITH JOHN (NCAOEMT003).....had successfully completed the Certified course "WIRELESS COMMUNICATION" during 2017-18 conducted by the Department of Mechatronics Engineering, Nehru College of Engineering and Research Centre, Pampady, Thrissur.

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Pin 680 597 Kerala

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Certificate OF COMPLETION

.....DHEERAJ. S (LNCE15MC067).....had successfully completed the Certified course "WIRELESS COMMUNICATION" during 2017-18 conducted by the Department of Mechatronics Engineering, Nehru College of Engineering and Research Centre, Pampady, Thrissur.

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Certificate OF COMPLETION

.....ASHISH BABU (NCE17MC003).....had successfully completed the Certified course "WIRELESS COMMUNICATION" during 2017-18 conducted by the Department of Mechatronics Engineering, Nehru College of Engineering and Research Centre, Pampady, Thrissur.

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Certificate OF COMPLETION

.....SAJITH.V (NCAOGMT049).....had successfully completed the Certified course "WIRELESS COMMUNICATION" during 2017-18 conducted by the Department of Mechatronics Engineering, Nehru College of Engineering and Research Centre, Pampady, Thrissur.

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Certificate OF COMPLETION

.....SMRUTHI RANJITH (NCE16MC043).....had successfully completed the Certified course "WIRELESS COMMUNICATION" during 2017-18 conducted by the Department of Mechatronics Engineering, Nehru College of Engineering and Research Centre, Pampady, Thrissur.

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Since 1968

ADMISSION TO CERTIFICATION COURSE (2017-2018)

Applications are invited for admission for the Certification Course 'ARTIFICIAL NEURAL NETWORK' offered by the Department of Mechatronics Engineering, Nehru college of Engineering and Research Centre, Pampady, Thrissur.

Eligibility criteria

All UG engineering students of MTR Department are eligible

Timing:

1 hour per day from 4.00pm to 5.00pm for 30 hours of the course. Saturday and Sunday may be used at the discretion of the department.

Attendance

A minimum of 75% attendance is required for writing the examination.

Important Dates

Commencement of classes: 21-08-2017

Examination Date: 10-11-2017

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HOD

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FROM

MR. LAKSHMI P V

ASSISTANT PROFESSOR

MTR DEPARTMENT, NCERC PAMPADY

TO

HEAD OF THE DEPARTMENT

MTR DEPARTMENT

NCERC PAMPADY

SUBJECT: Requisition for conducting Certification Course on "ARTIFICIAL NEURAL NETWORK"

Respected Sir,

As the Assistant Professor of Mechatronics Engineering, I would like to request your support and permission to conduct a Certification Course on "ARTIFICIAL NEURAL NETWORK" from 21-08-2017. It will be a 30 hour course scheduled for July to October of this year. It is therefore important for students to have a deep understanding of upcoming methodologies to enhance knowledge dissemination to students for doing projects.

All UG Engineering students of MTR Department are eligible for this course.

Sincerely,

Lakshmi

PLACE: Pampady

DATE: 27/7/17

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Pin 680 597 Kerala

FROM

MR. LAKSHMI P V

ASSISTANT PROFESSOR

MTR DEPARTMENT, NCERC PAMPADY

Forwarded to Principal.

TO

THE PRINCIPAL,

NCERC PAMPADY

Through HOD

Respected Mam,

SUBJECT: Requisition for conducting Certification Course on "ARTIFICIAL NEURAL NETWORK" Reg.

Students need a deep understanding of upcoming methodologies to enhance knowledge dissemination for doing projects. Artificial Neural network can be used for machine learning and data mining, so Mechatronics Engineering department would like to conduct a Certification Course on "ARTIFICIAL NEURAL NETWORK" from 21-08-2017. It will be a 30 hour course scheduled for July to October of this academic year 2017-2018. Kindly request you to give the permission for the same.

All UG Engineering students of MTR Department are eligible for this course.

Sincerely,

Lakshmi.

PLACE: PAMPADY

DATE: 1/8/17

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Permitted

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NEHRU COLLEGE OF ENGINEERING AND RESEARCH CENTRE

(ACCREDITED BY NAAC)

PAMPADY, THIRUVILWAMALA, THRISSUR DIST.

MINUTES OF DEPARTMENT ADVISORY COMMITTEE MEETING HELD ON 28/07/2017

A meeting of the Department Advisory Committee (DAC) was held on 28th July 2017 at 11:00 AM in the chamber of HoD(I/C), MTR department.

The following members were present:

1. Mr. Niveth L- HoD(I/C)(MTR)
2. Mr. Midhunraj P K-Assistant Professor, MTR Dept.
3. Mr. Ranjith P N-Assistant Professor, MTR Dept.
4. Mr. Lakshmi P V-Assistant Professor, MTR Dept.
5. Mr. Antony Richard-Assistant Professor, MTR Dept.

The following decisions were taken:

1. It was decided to conduct a certificate course on "ARTIFICIAL NEURAL NETWORKS" from 21ST August 2017 to 31st October 2017 for a period of 30 hours.
2. The course will give an in-depth knowledge about machine learning and data mining.
3. It was decided to provide the course for UG students of Mechatronics Engg. department.
4. Also, it was decided to ensure compulsory attendance and staff advisors should monitor the same.

The meeting came to an end at 11:50 AM.

HoD

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ADD ON COURSE SYLLABUS AND SCHEDULE

Since 1968

ARTIFICIAL NEURAL NETWORK

Unit-1 Introduction

Human Brain, Models of Neuron, Neural Networks viewed as directed graphs, Feedback, Network Architectures, Knowledge representation, Artificial Intelligence and Neural Networks. Introduction, Error-correction learning, Memory-based learning, Hebbian learning, Competitive learning,Boltzamann learning, Credit Assignment problem, Learning with a Teacher, Learning without a Teacher, Learning tasks, Memory, Adaptation.

Unit-2, Single Layer Perceptrons

Statistical nature of the learning process, Statistical learning theory, Approximately correct model of learning. Single Layer Perceptrons: Introduction, Adaptive filtering problem, Unconstrained optimization techniques, Linear least-squares filters, Least-mean square algorithm, Learning curves, Learning rate annealing techniques,Perceptron, Perceptron convergence theorem, Relation between the Perceptron and Bayes classifier for a Gaussian environment.

Unit-3 Multilayer Perceptrons

Introduction, Some preliminaries, Back-propagation Algorithm, Summary of back-propagation algorithm, XOR problem, Heuristics for making the back-propagation algorithm perform better, Output representation and decision rule, Computer experiment, Feature detection, Back-propagation and differentiation.

Unit-4 Radial-Basic Function Networks

Introduction, Cover's theorem on the separability of patterns, Interpolation problem, Supervised learning as an ill-posed Hypersurface reconstruction problem, Regularization theory, Regularization networks, Generalized radial-basis function networks, XOR problem, Estimation of the regularization parameter

COURSE SCHEDULE

Commencement of classes: 21-08-2017

Examination Date: 10-11-2017

PROGRAM COORDINATOR **HOD**

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DEPARTMENT OF MECHATRONICS ENGINEERING

ARTIFICIAL NEURAL NETRWORK

Attendance Sheet

SL. NO.	REG. NO.	NAME OF STUDENT	21/8/17	22/8/17	23/8/17	24/8/17	25/8/17	26/8/17	29/8/17	30/8/17	31/8/17	7/9/17
1	NCAOEMT008	AKHIL A	/	A	/	/	/	/	A	/	A	/
2	NCAOEMT009	AKHIL JOSEPH	/	/	/	A	/	/	/	/	/	/
3	NCAOEMT010	AKSHAY R	/	/	/	/	/	A	/	/	/	/
4	NCAOEMT011	ALEN BABY	A	A	/	/	/	/	/	A	/	/
5	NCAOEMT012	ALISHIHAN M S	/	/	/	/	/	/	/	/	/	/
6	NCAOEMT013	ANAND A S	/	/	/	/	/	/	/	/	/	/
7	NCAOEMT014	ANANDHU K V	/	/	/	A	/	/	/	/	/	/
8	NCAOEMT015	ANANTHU K S	/	/	/	/	/	/	/	/	/	/
9	NCAOEMT016	ANCE ANTONY	/	/	/	/	/	/	/	A	/	/
10	NCAOEMT017	ANFAL YOUSAFALI	/	/	/	/	/	/	/	/	/	/
11	NCAOEMT018	ARJUN	/	/	A	/	/	/	/	/	/	/
12	NCAOEMT025	ERSHINADH K KRISHNA	/	/	/	/	/	/	/	/	/	A
13	NCAOEMT026	FEMINA SHIREEN A	/	/	/	/	/	/	/	/	/	/
14	NCAOEMT027	FREDIN V JAMES	/	/	/	/	/	/	A	/	/	/
15	NCAOEMT028	GAUTHAM KRISHNA S	/	/	/	/	/	/	A	/	/	/
16	NCAOEMT029	GOPIKA M S	/	/	/	/	A	/	/	/	/	/
17	NCAOEMT030	GOVIND K	/	/	/	/	/	/	/	/	/	/
18	NCAOEMT031	HARIKRISHNAN N	/	/	/	/	/	/	/	/	/	/
19	NCAOEMT032	ISHAN HUSSAIN KALAKKAT	A	/	/	/	/	/	/	/	/	/
20	NCAOEMT033	JEEN M JOY	/	/	/	/	/	/	/	/	/	A
21	NCAOEMT034	JERIN JOHN	/	/	A	/	/	/	/	/	/	A
22	NCAOEMT054	SHINILNATH	/	/	/	/	/	/	/	/	/	/
23	NCAOEMT055	SIDHARTH N PISHARODY	/	/	/	/	/	/	/	/	/	/
24	NCAOEMT056	SRIRAG	/	/	/	A	A	/	/	/	/	/

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25	NCAOEMT057	THAHA MOHAMMED TM	A	/	/	/	/	/	/	/	/	/	A
26	NCAOEMT058	VISHNU K ANAND	/	/	/	A	/	/	/	/	/	/	/
27	NCAOEMT059	AKHIL KRISHNAN T	/	/	/	/	A	/	/	/	/	/	/
28	NCAOEMT060	SUJEETH	/	/	/	/	/	/	A	A	/	/	A
29	NCAOEMT061	NOBLE VARGHESE	/	/	/	A	/	/	/	/	/	/	/
30	NCAOEMT062	SHAMEER T K	/	/	/	/	/	/	/	/	A	/	/
31	NCAOEMT063	VISHNU K	/	/	/	/	/	/	/	/	/	/	/
32	NCE15MC016	ATHUL K A	/	/	A	/	/	/	/	/	/	/	/
33	NCE15MC017	ATHUL VAISHNAV C	/	/	/	/	A	A	/	/	/	/	/
34	NCE15MC019	DARIL SILVA	/	/	/	/	/	/	/	A	/	/	/
35	NCE15MC020	DEEPAK R	/	A	A	/	/	/	/	/	/	/	/
36	NCE15MC021	DEEPAK SUNIL	/	/	/	/	/	/	/	/	/	/	A
37	NCE15MC022	DEEPU VINIL	/	/	/	/	/	/	/	A	/	/	/
38	NCE15MC023	GOVIND K A	/	/	/	/	/	/	/	/	/	/	/
39	NCE15MC024	HARIHARAN C G	/	/	/	/	A	/	/	/	/	/	/
40	NCE15MC025	JEFINA TERESA JOHNSON	/	/	/	/	/	/	/	/	/	/	/
41	NCE15MC026	JEROM MATHEW PAUL	/	/	/	/	A	/	/	/	A	/	/
42	NCE15MC027	JITHIN T J	/	/	/	/	/	/	/	/	/	/	/
43	NCE15MC028	JOHNSON K JOSE	/	/	/	/	/	/	/	/	/	/	/
44	NCE15MC029	JOSEPH JITHIN PAUL	/	/	/	/	/	/	/	A	/	/	A
45	NCE15MC030	JOVIN DAVIS T	/	/	/	/	/	A	/	/	/	/	/
46	NCE15MC031	JUBY ELIZEBETH JOHN	/	/	A	/	/	A	/	/	/	/	/
47	NCE15MC032	JUSTIN JOSE	/	/	/	/	/	A	/	/	/	/	/
48	NCE15MC033	KENES CHRIS	/	/	/	/	/	/	/	/	/	/	/
49	NCE15MC034	KIRAN GEORGE	/	/	A	/	/	/	/	/	/	/	/
50	NCE15MC035	MARSHEL MARTIN	/	/	/	/	/	/	/	/	/	/	A
51	NCE15MC057	SUDHEESH S	/	/	/	/	/	/	/	/	/	/	/
52	NCE15MC058	VISHNU P V	/	/	/	/	/	/	/	/	/	/	/
53	NCE15MC059	VISHNU CHANDRAN N	A	/	/	/	/	/	/	/	/	/	A

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54	NCE15MC060	VISHNU RAJ P	A										A
55	NCE15MC061	YADUKRISHNAN K						A	A	A			
56	LNCE15MC062	ABINAV T V			A	A							
57	LNCE15MC063	AKSHAY SIVAN		A									
58	LNCE15MC064	ALAN V REJI									A		
59	LNCE15MC065	ASHIQUE ANAND											A
60	LNCE15MC066	AVINASH RAMANUJAN		A							A		
61	NCE16MC001	ABDUL HAMEED V M						A					
62	NCE16MC002	ADITH SUNDER C			A								
63	NCE16MC003	AKASH KRISHNAN A					A		A				
64	NCE16MC004	AKHIL REGHUNATH					A						A
65	NCE16MC005	AMAL DAS T S						A					
66	NCE16MC006	AMAL J ANTONY	A									A	
67	NCE16MC007	AMALJITH K					A						
68	NCE16MC008	AMAL M A										A	
69	NCE16MC009	ANIL C A			A		A						
70	NCE16MC010	ANSELM LINSON											A
71	NCE16MC011	ANTONY KOMBAN WINSON										A	
72	NCE16MC018	GOVARDHAN P B				A							
73	NCE16MC019	ISSAC K JOY								A			
74	NCE16MC020	JIJAY KRISHNA M										A	
75	NCE16MC021	JITHIN CHERIYAN	A										
76	NCE16MC022	JITHIN T				A							
77	NCE16MC027	MUHAMMED BASIL S							A				
78	NCE16MC028	MUHAMMED SHAFI K							A				A
79	NCE16MC029	NIKHIL											A
80	NCE16MC030	NOURIN				A							
81	NCE16MC031	PRATHIBHA P K			A								
82	NCE16MC032	RAHUL RAMESH								A			
83	NCE16MC033	RAMEES N								A			
84	NCE16MC034	ROBIN JOSEPH								A			

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85	NCE16MC046	VIKAS V	A	/	/	/	/	/	/	/	/	/	/
86	NCE16MC047	VISHNU P	/	/	A	/	/	/	/	/	/	/	/
87	NCE16MC048	VISHNUPRAKASH V U	/	/	/	/	/	/	A	/	/	/	/
88	NCE16MC049	VYSHNAV C V	/	/	/	/	/	/	/	/	/	A	/
89	NCE17MC008	Rahul K.r	/	/	/	A	/	/	/	/	/	/	/
90	NCE17MC009	Sanjay Sudhakaran	/	/	/	/	A	/	/	/	/	/	/
91	NCE17MC010	Sibi Shalu	/	/	/	/	/	/	/	/	/	/	A
92	NCE17MC011	Suryakanth Shenoi R	/	/	A	/	/	/	/	/	/	/	/
93	NCE17MC012	Vinay Vijay	/	/	/	/	/	/	A	/	/	/	/
94	NCE17MC013	Vishnu.s	/	/	/	/	/	/	/	/	/	A	/
95	NCE17MC014	Vishnu Suresh Kumar	/	/	A	/	/	/	/	/	/	/	/

PROGRAM COORDINATOR

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DEPARTMENT OF MECHATRONICS ENGINEERING

ARTIFICIAL NEURAL NETRWORK

Attendance Sheet

SL. NO.	REG. NO.	NAME OF STUDENT	9/9/17	9/9/17	13/9/17	14/9/17	15/9/17	16/9/17	18/9/17	19/9/17	22/9/17	23/9/17
1	NCAOEMT008	AKHIL A	A	A	/	/	/	/	/	/	/	/
2	NCAOEMT009	AKHIL JOSEPH	/	/	/	/	A	/	/	/	/	/
3	NCAOEMT010	AKSHAY R	/	/	A	/	/	/	A	/	/	/
4	NCAOEMT011	ALEN BABY	/	/	/	/	/	/	/	/	/	A
5	NCAOEMT012	ALISHIHAN M S	/	/	/	A	/	/	/	/	A	/
6	NCAOEMT013	ANAND A S	/	/	A	/	/	A	/	/	/	/
7	NCAOEMT014	ANANDHU K V	/	/	/	/	/	/	A	A	/	/
8	NCAOEMT015	ANANTHU K S	/	/	/	/	/	/	/	/	/	A
9	NCAOEMT016	ANCE ANTONY	/	/	/	/	/	/	/	/	/	A
10	NCAOEMT017	ANFAL YOUSAFALI	/	/	/	/	/	/	/	/	/	A
11	NCAOEMT018	ARJUN	/	/	/	A	A	/	/	/	/	/
12	NCAOEMT025	ERSHINADH K KRISHNA	/	/	/	/	/	/	/	/	A	/
13	NCAOEMT026	FEMINA SHIREEN A	/	A	/	/	/	/	/	/	/	/
14	NCAOEMT027	FREDIN V JAMES	/	/	/	/	/	/	/	/	A	/
15	NCAOEMT028	GAUTHAM KRISHNA S	/	/	/	/	/	/	/	A	/	/
16	NCAOEMT029	GOPIKA M S	/	/	/	/	/	/	/	A	/	/
17	NCAOEMT030	GOVIND K	/	/	/	/	A	/	/	/	/	/
18	NCAOEMT031	HARIKRISHNAN N	/	/	/	/	A	/	/	A	/	/
19	NCAOEMT032	ISHAN HUSSAIN KALAKKAT	/	/	A	/	/	/	/	/	/	/
20	NCAOEMT033	JEEN M JOY	/	/	/	/	/	A	A	/	/	A
21	NCAOEMT034	JERIN JOHN	/	/	/	/	/	/	/	/	/	A
22	NCAOEMT054	SHINILNATH	A	/	/	/	/	/	/	/	/	/
23	NCAOEMT055	SIDHARTH N PISHARODY	/	/	/	/	/	/	/	/	A	A
24	NCAOEMT056	SRIRAG	A	/	/	/	/	/	/	/	/	/

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25	NCAOEMT057	THAHA MOHAMMED TM	/	A	/	/	/	/	/	/	/	/	/
26	NCAOEMT058	VISHNU K ANAND	/	/	/	/	/	A	/	/	/	/	/
27	NCAOEMT059	AKHIL KRISHNAN T	/	/	/	/	/	A	/	/	/	/	/
28	NCAOEMT060	SUJEETH	/	/	/	/	A	/	/	/	/	/	/
29	NCAOEMT061	NOBLE VARGHESE	/	/	/	/	/	A	/	/	/	/	/
30	NCAOEMT062	SHAMEER T K	/	/	/	/	/	/	A	/	/	/	A
31	NCAOEMT063	VISHNU K	/	/	/	A	/	/	/	/	/	/	/
32	NCE15MC016	ATHUL K A	/	/	/	A	/	/	/	/	/	/	/
33	NCE15MC017	ATHUL VAISHNAV C	/	/	/	/	/	/	/	A	/	/	/
34	NCE15MC019	DARIL SILVA	/	/	/	/	/	/	/	A	A	/	/
35	NCE15MC020	DEEPAK R	/	/	A	/	/	/	/	/	/	/	/
36	NCE15MC021	DEEPAK SUNIL	/	/	/	/	/	A	/	/	/	/	/
37	NCE15MC022	DEEPU VINIL	/	/	/	/	/	/	A	/	/	/	/
38	NCE15MC023	GOVIND K A	/	/	/	/	/	/	A	/	/	/	/
39	NCE15MC024	HARIHARAN C G	/	/	/	/	/	A	/	/	/	/	/
40	NCE15MC025	JEFINA TERESA JOHNSON	/	/	/	/	/	A	/	/	/	/	/
41	NCE15MC026	JEROM MATHEW PAUL	/	/	/	/	/	/	A	A	/	/	/
42	NCE15MC027	JITHIN T J	/	/	/	A	/	/	/	/	/	/	/
43	NCE15MC028	JOHNSON K JOSE	/	/	/	/	/	/	/	/	A	/	/
44	NCE15MC029	JOSEPH JITHIN PAUL	/	/	/	/	A	/	/	/	/	/	/
45	NCE15MC030	JOVIN DAVIS T	/	/	/	/	/	/	/	/	/	A	/
46	NCE15MC031	JUBY ELIZEBETH JOHN	/	/	/	/	/	A	/	/	/	/	/
47	NCE15MC032	JUSTIN JOSE	/	/	/	A	/	/	/	/	/	/	/
48	NCE15MC033	KENES CHRIS	/	/	A	/	/	/	/	/	/	/	/
49	NCE15MC034	KIRAN GEORGE	/	/	/	A	/	/	/	/	/	/	/
50	NCE15MC035	MARSHEL MARTIN	A	/	/	/	/	/	/	/	/	/	/
51	NCE15MC057	SUDHEESH S	/	/	/	/	/	/	/	A	/	/	/
52	NCE15MC058	VISHNU P V	/	/	/	/	/	/	/	/	/	/	/
53	NCE15MC059	VISHNU CHANDRAN N	/	/	/	/	/	/	/	/	A	A	

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54	NCE15MC060	VISHNU RAJ P	A	/	/	/	/	/	/	/	/	/	/	/
55	NCE15MC061	YADUKRISHNAN K	/	/	/	/	/	/	/	/	/	/	/	A
56	LNCE15MC062	ABINAV T V	/	A	A	/	/	/	/	/	/	/	/	/
57	LNCE15MC063	AKSHAY SIVAN	/	/	/	/	/	A	A	/	/	/	/	/
58	LNCE15MC064	ALAN V REJI	/	/	/	/	/	/	/	/	/	A	/	/
59	LNCE15MC065	ASHIQUE ANAND	/	/	/	/	/	/	/	A	/	/	/	/
60	LNCE15MC066	AVINASH RAMANUJAN	/	/	/	/	/	/	/	/	/	/	/	A
61	NCE16MC001	ABDUL HAMEED V M	/	/	/	/	/	/	/	/	/	A	/	/
62	NCE16MC002	ADITH SUNDER C	/	/	A	/	/	/	/	A	/	/	/	/
63	NCE16MC003	AKASH KRISHNAN A	/	/	/	/	/	/	A	/	/	/	/	/
64	NCE16MC004	AKHIL REGHUNATH	/	/	/	/	A	/	/	/	/	/	/	/
65	NCE16MC005	AMAL DAS T S	/	/	/	A	/	/	/	/	/	/	/	/
66	NCE16MC006	AMAL J ANTONY	/	/	/	/	/	/	A	/	/	/	/	/
67	NCE16MC007	AMALJITH K	/	/	/	/	/	A	/	/	/	/	/	/
68	NCE16MC008	AMAL M A	A	/	/	/	/	/	/	/	/	/	/	/
69	NCE16MC009	ANIL C A	/	/	/	/	/	/	/	/	/	/	/	/
70	NCE16MC010	ANSELM LINSON	/	A	/	/	/	/	/	A	/	/	/	/
71	NCE16MC011	ANTONY KOMBAN WINSON	/	/	/	/	/	/	/	A	/	/	/	/
72	NCE16MC018	GOVARDHAN P B	/	/	/	/	/	/	/	/	/	/	A	/
73	NCE16MC019	ISSAC K JOY	/	/	A	/	/	/	/	/	/	/	/	/
74	NCE16MC020	JIJAY KRISHNA M	/	/	/	/	/	/	/	/	/	/	A	/
75	NCE16MC021	JITHIN CHERIYAN	/	/	/	/	/	A	/	/	/	/	/	/
76	NCE16MC022	JITHIN T	/	/	/	/	/	/	/	/	/	/	A	/
77	NCE16MC027	MUHAMMED BASIL S	/	/	A	/	/	/	/	/	/	/	/	/
78	NCE16MC028	MUHAMMED SHAFI K	/	/	/	/	/	/	/	/	/	A	/	/
79	NCE16MC029	NIKHIL	/	/	/	A	/	/	/	/	/	/	/	/
80	NCE16MC030	NOURIN	A	/	/	/	/	/	/	A	/	/	/	/
81	NCE16MC031	PRATHIBHA P K	/	/	/	/	/	/	/	/	/	/	A	/
82	NCE16MC032	RAHUL RAMESH	/	/	A	/	/	/	/	/	/	/	/	/
83	NCE16MC033	RAMEES N	/	/	/	/	/	/	A	/	/	/	/	/
84	NCE16MC034	ROBIN JOSEPH	/	/	/	A	/	/	/	/	/	/	A	/

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85	NCE16MC046	VIKAS V	/	/	/	/	/	/	A	/	/	/
86	NCE16MC047	VISHNU P	/	/	/	/	/	/	/	/	A	/
87	NCE16MC048	VISHNUPRAKASH V U	/	/	A	/	/	/	/	/	/	/
88	NCE16MC049	VYSHNAV C V	/	/	/	/	/	/	/	/	/	A
89	NCE17MC008	Rahul K.r	/	/	/	A	A	/	/	/	/	/
90	NCE17MC009	Sanjay Sudhakaran	/	A	/	/	/	/	/	/	/	/
91	NCE17MC010	Sibi Shalu	A	/	/	/	/	/	/	/	/	/
92	NCE17MC011	Suryakanth Shenoi R	/	/	/	/	A	/	/	/	/	/
93	NCE17MC012	Vinay Vijay	/	/	/	/	/	A	/	/	/	/
94	NCE17MC013	Vishnu.s	/	/	/	/	/	/	A	/	/	/
95	NCE17MC014	Vishnu Suresh Kumar	/	/	/	/	/	/	/	/	/	A

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DEPARTMENT OF MECHATRONICS ENGINEERING

ARTIFICIAL NEURAL NETRWORK

Attendance Sheet

SL. NO.	REG. NO.	NAME OF STUDENT	25/9/17	26/9/17	7/10/17	12/10/17	14/10/17	19/10/17	21/10/17	28/10/17	30/10/17	31/10/17
1	NCAOEMT008	AKHIL A	/	/	/	/	/	/	/	/	/	A
2	NCAOEMT009	AKHIL JOSEPH	/	/	A	/	/	/	/	/	/	/
3	NCAOEMT010	AKSHAY R	/	/	/	/	/	A	/	/	/	/
4	NCAOEMT011	ALEN BABY	A	/	/	/	/	/	/	/	A	/
5	NCAOEMT012	ALISHIHAN M S	/	/	/	/	/	/	/	/	/	A
6	NCAOEMT013	ANAND A S	/	/	/	/	/	A	/	/	/	/
7	NCAOEMT014	ANANDHU K V	/	/	/	/	/	/	/	A	/	/
8	NCAOEMT015	ANANTHU K S	/	/	/	/	/	/	/	A	/	/
9	NCAOEMT016	ANCE ANTONY	/	/	/	A	/	/	/	/	/	/
10	NCAOEMT017	ANFAL YOUSAFALI	/	/	/	/	/	/	A	/	/	A
11	NCAOEMT018	ARJUN	/	/	/	/	/	/	/	/	A	A
12	NCAOEMT025	ERSHINADH K KRISHNA	/	/	/	/	A	/	/	/	/	/
13	NCAOEMT026	FEMINA SHIREEN A	/	/	A	/	/	/	/	A	/	/
14	NCAOEMT027	FREDIN V JAMES	/	/	/	/	/	/	/	/	/	/
15	NCAOEMT028	GAUTHAM KRISHNA S	/	/	/	A	/	/	/	/	/	A
16	NCAOEMT029	GOPIKA M S	/	/	/	/	/	/	/	A	/	/
17	NCAOEMT030	GOVIND K	/	/	/	/	/	/	A	/	/	/
18	NCAOEMT031	HARIKRISHNAN N	/	A	/	/	/	/	/	/	/	/
19	NCAOEMT032	ISHAN HUSSAIN KALAKKAT	/	/	/	/	/	/	/	/	A	/
20	NCAOEMT033	JEEN M JOY	/	/	/	/	A	A	/	/	/	/
21	NCAOEMT034	JERIN JOHN	/	/	/	/	/	A	/	/	/	/
22	NCAOEMT054	SHINILNATH	A	/	/	/	/	A	/	/	/	A
23	NCAOEMT055	SIDHARTH N PISHARODY	/	/	/	/	/	A	/	/	/	/
24	NCAOEMT056	SRIRAG	/	/	/	/	/	/	/	/	/	A

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25	NCAOEMT057	THAHA MOHAMMED TM	/	/	/	/	/	A	/	/	/	/		
26	NCAOEMT058	VISHNU K ANAND	A	/	/	/	/	/	/	A	/	/		
27	NCAOEMT059	AKHIL KRISHNAN T	/	/	/	/	A	/	/	/	/	/		
28	NCAOEMT060	SUJEETH	/	/	/	A	/	/	/	/	/	/		
29	NCAOEMT061	NOBLE VARGHESE	/	/	/	/	/	/	/	/	/	A		
30	NCAOEMT062	SHAMEER T K	/	A	/	/	/	/	/	/	/	/		
31	NCAOEMT063	VISHNU K	/	/	/	/	/	/	/	/	A	/		
32	NCE15MC016	ATHUL K A	/	/	/	/	/	/	A	/	/	/		
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34	NCE15MC019	DARIL SILVA	/	A	/	/	/	/	/	/	/	/		
35	NCE15MC020	DEEPAK R	/	/	/	A	A	/	/	/	/	/		
36	NCE15MC021	DEEPAK SUNIL	/	/	/	/	/	/	/	/	/	A		
37	NCE15MC022	DEEPU VINIL	/	/	/	/	/	/	A	/	/	/		
38	NCE15MC023	GOVIND K A	A	/	/	/	/	A	/	/	/	/		
39	NCE15MC024	HARIHARAN C G	/	/	/	/	/	/	/	A	/	/		
40	NCE15MC025	JEFINA TERESA JOHNSON	/	/	/	A	/	/	/	/	/	/		
41	NCE15MC026	JEROM MATHEW PAUL	/	/	/	/	/	/	A	/	A	/		
42	NCE15MC027	JITHIN T J	/	/	/	/	A	/	/	/	/	/		
43	NCE15MC028	JOHNSON K JOSE	/	/	/	/	/	/	A	/	/	A		
44	NCE15MC029	JOSEPH JITHIN PAUL	/	/	A	/	/	/	/	/	/	/		
45	NCE15MC030	JOVIN DAVIS T	/	/	/	/	/	/	/	/	/	A		
46	NCE15MC031	JUBY ELIZEBETH JOHN	/	/	/	/	/	/	A	/	/	/		
47	NCE15MC032	JUSTIN JOSE	/	A	/	/	/	/	/	/	/	/		
48	NCE15MC033	KENES CHRIS	/	/	/	A	/	/	/	A	/	/		
49	NCE15MC034	KIRAN GEORGE	/	A	/	/	/	A	/	/	/	/		
50	NCE15MC035	MARSHEL MARTIN	/	/	/	/	/	/	/	/	/	A		
51	NCE15MC057	SUDHEESH S	/	/	/	/	/	/	/	A	/	/		
52	NCE15MC058	VISHNU P V	/	/	/	/	/	/	/	/	/	A		
53	NCE15MC059	VISHNU CHANDRAN N	A	/	/	/	/	/	/	/	/	/		

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54	NCE15MC060	VISHNU RAJ P	/	/	/	/	/	/	/	/	/	A
55	NCE15MC061	YADUKRISHNAN K	A	/	/	/	/	/	/	/	/	A
56	LNCE15MC062	ABINAV T V	/	/	A	/	/	/	/	/	/	/
57	LNCE15MC063	AKSHAY SIVAN	/	/	/	/	/	A	/	/	/	/
58	LNCE15MC064	ALAN V REJI	/	/	/	/	/	/	/	/	A	/
59	LNCE15MC065	ASHIQUE ANAND	/	/	/	A	/	/	/	/	/	/
60	LNCE15MC066	AVINASH RAMANUJAN	/	/	/	/	/	/	A	/	/	/
61	NCE16MC001	ABDUL HAMEED V M	/	A	/	/	/	/	/	/	/	A
62	NCE16MC002	ADITH SUNDER C	/	/	/	/	A	/	/	/	/	/
63	NCE16MC003	AKASH KRISHNAN A	/	/	/	/	/	/	/	/	A	/
64	NCE16MC004	AKHIL REGHUNATH	/	/	/	/	/	/	/	/	/	/
65	NCE16MC005	AMAL DAS T S	/	/	/	/	/	/	A	A	/	/
66	NCE16MC006	AMAL J ANTONY	A	/	/	/	/	/	/	/	/	A
67	NCE16MC007	AMALJITH K	/	/	/	A	/	/	/	/	/	/
68	NCE16MC008	AMAL M A	/	/	A	/	/	A	/	/	/	/
69	NCE16MC009	ANIL C A	/	/	/	/	/	/	/	A	A	/
70	NCE16MC010	ANSELM LINSON	/	/	/	/	A	/	/	/	/	A
71	NCE16MC011	ANTONY KOMBAN WINSON	/	A	/	/	/	/	/	/	/	/
72	NCE16MC018	GOVARDHAN P B	/	/	/	/	/	/	/	/	/	A
73	NCE16MC019	ISSAC K JOY	/	/	A	/	/	/	/	/	/	/
74	NCE16MC020	JIJAY KRISHNA M	/	/	/	/	A	/	/	/	/	/
75	NCE16MC021	JITHIN CHERIYAN	/	/	/	/	/	/	/	A	/	/
76	NCE16MC022	JITHIN T	/	/	/	/	/	/	/	/	A	/
77	NCE16MC027	MUHAMMED BASIL S	/	/	/	A	/	/	/	/	/	/
78	NCE16MC028	MUHAMMED SHAFI K	/	/	A	/	/	/	/	/	/	/
79	NCE16MC029	NIKHIL	/	/	/	/	/	A	/	/	/	A
80	NCE16MC030	NOURIN	A	/	/	/	/	/	/	/	A	/
81	NCE16MC031	PRATHIBHA P K	/	/	/	/	/	/	/	/	A	/
82	NCE16MC032	RAHUL RAMESH	/	A	A	/	/	/	/	/	A	/
83	NCE16MC033	RAMEES N	/	/	/	/	/	/	A	/	/	/
84	NCE16MC034	ROBIN JOSEPH	/	/	/	/	/	/	/	/	/	A

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85	NCE16MC046	VIKAS V	/	/	/	/	/	/	/	/	/	/	A
86	NCE16MC047	VISHNU P	/	/	/	/	/	/	/	/	/	/	/
87	NCE16MC048	VISHNUPRAKASH V U	/	A	/	/	/	/	/	A	/	/	/
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89	NCE17MC008	Rahul K.r	/	/	/	/	/	/	/	/	/	/	/
90	NCE17MC009	Sanjay Sudhakaran	/	/	/	/	/	/	A	/	/	/	A
91	NCE17MC010	Sibi Shalu	/	/	A	/	/	/	/	/	/	/	/
92	NCE17MC011	Suryakanth Shenoi R	/	/	/	/	/	/	/	/	/	/	/
93	NCE17MC012	Vinay Vijay	/	/	/	/	/	/	/	/	/	A	/
94	NCE17MC013	Vishnu.s	/	/	/	/	/	/	/	/	/	/	/
95	NCE17MC014	Vishnu Suresh Kumar	A	/	/	/	/	/	/	/	/	/	/

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ADD ON COURSE ANSWER KEY

Since 1968

ARTIFICIAL NEURAL NETWORK

1. C
2. D
3. A
4. B
5. A
6. B
7. C
8. C
9. C
10. A
11. D
12. A
13. D
14. B
15. C
16. D
17. B
18. C
19. B
20. B
21. C
22. B
23. B
24. C
25. B
26. A
27. D
28. A
29. D
30. A
31. B
32. B
33. A
34. B
35. B
36. A

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37. B
38. A
39. C
40. A
41. C
42. A
43. D
44. B
45. B
46. A
47. D
48. D
49. A
50. C

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JOVIN DAVIS·T
NCE15MC030 56/100

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CERTIFICATION COURSE QUESTION PAPER

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1. In neural how can connectons between different layers be achieved?
a) interlayer
b) intralayer
c) both interlayer and intralayer
d) either interlayer or intralayer

2. Connections across the layers in standard topologies & among the units within a layer can be organised?
a) in feedforward manner
b) in feedback manner
c) both feedforward & feedback
d) either feedforward & feedback

3. What is an instar topology?
a) when input is given to layer F1, the the jth(say) unit of other layer F2 will be activated to maximum extent
b) when weight vector for connections from jth unit (say) in F2 approaches the activity pattern in F1(comprises of input vector)
c) can be either way
d) none of the mentioned

4. What is an outstar topology?
a) when input is given to layer F1, the the jth(say) unit of other layer F2 will be activated to maximum extent
b) when weight vector for connections from jth unit (say) in F2 approaches the activity pattern in F1(comprises of input vector)
c) can be either way
d) none of the mentioned

5. The operation of instar can be viewed as?
a) content addressing the memory
b) memory addressing the content

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c) either content addressing or memory addressing
d) both content & memory addressing

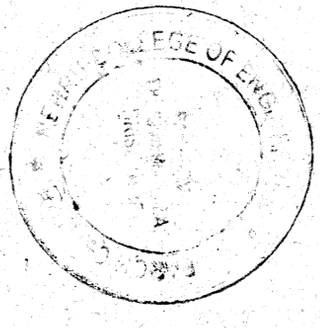
6. The operation of outstar can be viewed as?
a) content addressing the memory
b) memory addressing the content
c) either content addressing or memory addressing
d) both content & memory addressing

7. If two layers coincide & weights are symmetric(wij=wji), then what is that structure called?
a) instar
b) outstar
c) autoassociative memory
d) heteroassociative memory

8. Heteroassociative memory can be an example of which type of network?
a) group of instars
b) group of oustar
c) either group of instars or outstars
d) both group of instars or outstars

9. What is STM in neural network?
a) short topology memory
b) stimulated topology memory
c) short term memory
d) none of the mentioned

10. What does STM corresponds to?
a) activation state of network
b) encoded pattern information pattern in synaptic weights
c) either way
d) both way



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11. On what parameters can change in weight vector depend?
a) learning parameters
b) input vector
c) learning signal
d) all of the mentioned

12. If the change in weight vector is represented by Δwij, what does it mean?
a) describes the change in weight vector for ith processing unit, taking input vector jth into account
b) describes the change in weight vector for jth processing unit, taking input vector ith into account
c) describes the change in weight vector for jth & ith processing unit.
d) none of the mentioned

13. What is learning signal in this equation Δwij= μf(wi a)aj?
a) μ
b) wi a
c) aj
d) f(wi a)

14. State whether Hebb's law is supervised learning or of unsupervised type?
a) supervised
b) unsupervised
c) either supervised or unsupervised
d) can be both supervised & unsupervised

15. Hebb's law can be represented by equation?
a) Δwij= μf(wi a)aj
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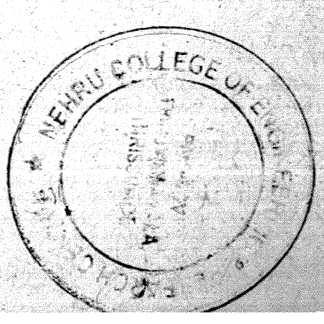
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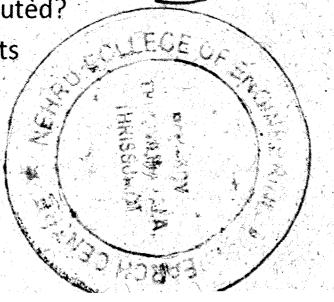
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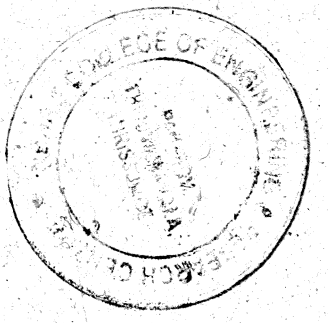
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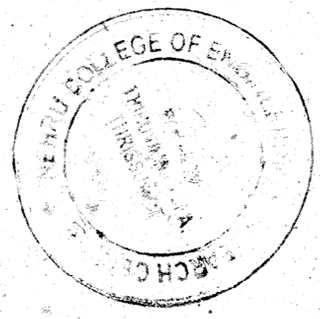
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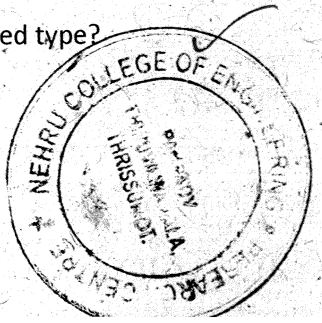
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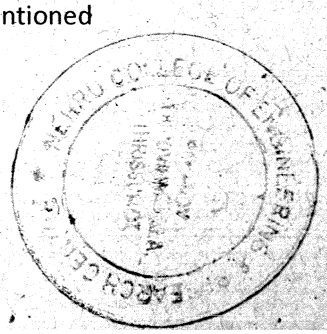
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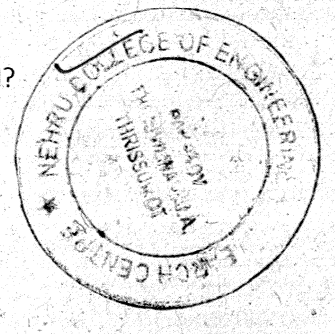
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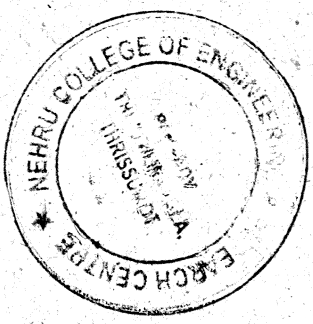
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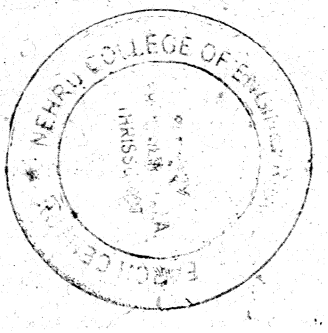
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a) Hebb
b) LMS
c) MMS
d) None of the mentioned

20. Which of the following equation represent perceptron learning law?
a) $\Delta wij = \mu(si)\, aj$
b) $\Delta wij = \mu(bi - si)\, aj$
c) $\Delta wij = \mu(bi - si)\, aj\, Á(xi)$,wher Á(xi) is derivative of xi
d) $\Delta wij = \mu(bi - (wi\, a))\, aj$

21. Activation models are?
a) dynamic
b) static
c) deterministic
d) none of the mentioned

22. If xb(t) represents differentiation of state x(t), then a stochastic model can be represented by?
a) xb(t)=deterministic model
b) xb(t)=deterministic model + noise component
c) xb(t)=deterministic model*noise component
d) none of the mentioned'

23. What is equilibrium in neural systems?
a) deviation in present state, when small perturbations occur
b) settlement of network, when small perturbations occur
c) change in state, when small perturbations occur
d) none of the mentioned



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24.What is the condition in Stochastic models, if xb(t) represents differentiation of state x(t)?

a) xb(t)=0

b) xb(t)=1

c) xb(t)=n(t), where n is noise component

d) xb(t)=n(t)+1

25. What is asynchronous update in a network?

a) update to all units is done at the same time

b) change in state of any one unit drive the whole network

c) change in state of any number of units drive the whole network

d) none of the mentioned

26. Learning is a?

a) slow process

b) fast process

c) can be slow or fast in general

d) can't say

27. What are the requirements of learning laws?

a) convergence of weights

b) learning time should be as small as possible

c) learning should use only local weights

d) all of the mentioned

28. Memory decay affects what kind of memory?

a) short tem memory in general

b) older memory in general

c) can be short term or older

d) none of the mentioned

29. What are the requirements of learning laws?

a) learning should be able to capture more & more patterns

b) learning should be able to grasp complex nonliear mappings

c) convergence of weights

d) all of the mentioned

30. How is pattern information distributed?

a) it is distributed all across the weights

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b) it is distributed in localised weights
c) it is distributed in certain proctive weights only
d) none of the mentioned

31. How can false minima be reduced in case of error in recall in feedback neural networks?
a) by providing additional units
b) by using probabilistic update
c) can be either probabilistic update or using additional units
d) none of the mentioned

32. What is a Boltzman machine?
a) A feedback network with hidden units
b) A feedback network with hidden units and probabilistic update
c) A feed forward network with hidden units
d) A feed forward network with hidden units and probabilistic update

33. What is objective of linear autoassociative feedforward networks?
a) to associate a given pattern with itself
b) to associate a given pattern with others
c) to associate output with input
d) none of the mentioned

34. Is there any error in linear autoassociative networks?
a) yes
b) no

35. If input is ' a(l) + e ' where 'e' is the noise introduced, then what is the output in case of autoassociative feedback network?
a) a(l)
b) a(l) + e
c) could be either a(l) or a(l) + e
d) e

36. If input is ' a(l) + e ' where 'e' is the noise introduced, then what is the output if system is accretive in nature?
a) a(l)
b) a(l) + e
c) could be either a(l) or a(l) + e

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d) e

37. If input is ' a(l) + e ' where 'e' is the noise introduced, then what is the output if system is interpolative in nature?
a) a(l)
b) a(l) + e
c) could be either a(l) or a(l) + e
d) e

38. What property should a feedback network have, to make it useful for storing information?
a) accretive behaviour
b) interpolative behaviour
c) both accretive and interpolative behaviour
d) none of the mentioned

39. What is the objective of a pattern storage task in a network?
a) to store a given set of patterns
b) to recall a give set of patterns
c) both to store and recall
d) none of the mentioned

40. Linear neurons can be useful for application such as interpolation, is it true?
a) yes
b) no

41. What is the objective of backpropagation algorithm?
a) to develop learning algorithm for multilayer feedforward neural network
b) to develop learning algorithm for single layer feedforward neural network
c) to develop learning algorithm for multilayer feedforward neural network, so that network can be trained to capture the mapping implicitly
d) none of the mentioned

42. The backpropagation law is also known as generalized delta rule, is it true?
a) yes
b) no

43. What is true regarding backpropagation rule?
a) it is also called generalized delta rule

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b) error in output is propagated backwards only to determine weight updates
c) there is no feedback of signal at nay stage
d) all of the mentioned

44. There is feedback in final stage of backpropagation algorithm?
a) yes
b) no

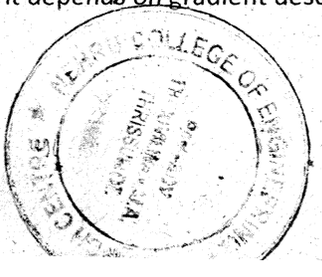
45. What is true regarding backpropagation rule?
a) it is a feedback neural network
b) actual output is determined by computing the outputs of units for each hidden layer
c) hidden layers output is not all important, they are only meant for supporting input and output layers
d) none of the mentioned

46. What is meant by generalized in statement "backpropagation is a generalized delta rule" ?
a) because delta rule can be extended to hidden layer units
b) because delta is applied to only input and output layers, thus making it more simple and generalized
c) it has no significance
d) none of the mentioned

47. What are general limitations of back propagation rule?
a) local minima problem
b) slow convergence
c) scaling
d) all of the mentioned

48. What are the general tasks that are performed with backpropagation algorithm?
a) pattern mapping
b) function approximation
c) prediction
d) all of the mentioned

49. Does backpropagaion learning is based on gradient descent along error surface?
a) yes
b) no
c) cannot be said
d) it depends on gradient descent but not error surface



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50. How can learning process be stopped in backpropagation rule?

a) there is convergence involved

b) no heuristic criteria exist

c) on basis of average gradient value

d) none of the mentioned

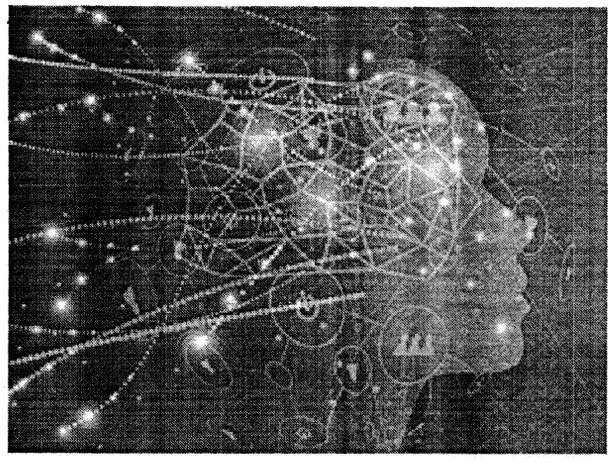


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ACADAMIC YEAR (2017-18)

DEPARTMENT OF MECHATRONICS ENGINEERING
OFFERING CERTIFIED COURSE ON

ARTIFICIAL NEURAL NETWORK



COURSE POINTS

- ✓ INTRODUCTION TO NEURAL NETWORK
- ✓ SINGLE LAYER PERCEPTRONS
- ✓ MULTILAYER PERCEPTRONS
- ✓ RADIAL-BASIC FUNCTION NETWORKS

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.....ARJUN (NCAOEMT018).....had successfully completed the Certified course "ARTIFICIAL NEURAL NETWORK" during 2017-18 conducted by the Department of Mechatronics Engineering, Nehru College of Engineering and Research Centre, Pampady, Thrissur.

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.....JITHIN CHERIYAN (NCE16MC021).....had successfully completed the Certified course "ARTIFICIAL NEURAL NETWORK" during 2017-18 conducted by the Department of Mechatronics Engineering, Nehru College of Engineering and Research Centre, Pampady, Thrissur.

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.....VINAY VIJAY (NCE17MC012).....had successfully completed the Certified course "ARTIFICIAL NEURAL NETWORK" during 2017-18 conducted by the Department of Mechatronics Engineering, Nehru College of Engineering and Research Centre, Pampady, Thrissur.

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Since 1968

ADMISSION TO CERTIFICATION COURSE (2017-2018)

Applications are invited for admission for the Certification Course 'MACHINE KINEMATICS' offered by the Department of Mechatronics Engineering, Nehru college of Engineering and Research Centre, Pampady, Thrissur.

Eligibility criteria

All UG engineering students of MTR Department are eligible

Timing:

1 hour per day from 4.00pm to 5.00pm for 30 hours of the course. Saturday and Sunday may be used at the discretion of the department.

Attendance

A minimum of 75% attendance is required for writing the examination.

Important Dates

Commencement of classes: 08-01-2018

Examination Date: 30-03-2018

HOD

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FROM

MR. JISHNU V P

ASSISTANT PROFESSOR

MTR DEPARTMENT, NCERC PAMPADY

TO

HEAD OF THE DEPARTMENT

MTR DEPARTMENT

NCERC PAMPADY

SUBJECT: Requisition for conducting Certification Course on "MACHINE KINEMATICS"

Respected Sir,

As the Assistant Professor of Mechatronics Engineering, I would like to request your support and permission to conduct a Certification Course on "MACHINE KINEMATICS" from 08-01-2018. It will be a 30 hour course scheduled for July to October of this academic year 2017-2018. It is therefore important for students to have a deep understanding of upcoming methodologies to enhance knowledge dissemination to students for doing projects.

All UG Engineering students of MTR Department are eligible for this course.

Sincerely,

PLACE: Pampady

DATE: 1/12/17

Permitted

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NEHRU COLLEGE OF ENGINEERING & RESEARCH CENTRE
THRISSUR DT

FROM

MR. JISHNU V P

ASSISTANT PROFESSOR

MTR DEPARTMENT, NCERC PAMPADY

Forwarded to Principal.

TO

THE PRINCIPAL,

NCERC PAMPADY

Through HOD

Respected Mam,

SUBJECT: Requisition for conducting Certification Course on "MACHINE KINEMATICS" Reg.

Students need a deep understanding of upcoming methodologies to enhance knowledge dissemination for doing projects. Machine Kinematics is used to describe the motion of systems composed of joined parts (multi-link systems) such as an engine or a robotic arm, so Mechatronics Engineering department would like to conduct a Certification Course on "MACHINE KINEMATICS" from 08-01-2018. It will be a 30 hour course scheduled for July to October of this academic year 2017-2018. Kindly request you to give the permission for the same.

All UG Engineering students of MTR Department are eligible for this course.

Sincerely,

PLACE: PAMPADY

DATE: 4/12/17

permitted

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PAMPADY, THIRUVILWAMALA, THRISSUR DIST.

MINUTES OF DEPARTMENT ADVISORY COMMITTEE MEETING HELD ON 01/12/2017

A meeting of the Department Advisory Committee (DAC) was held on 01st December 2017 at 3:00 PM in the chamber of HoD(I/C), MTR department.

The following members were present:

1. Mr. Niveth L-HoD(I/C), MTR Dept.
2. Mr. Midhunraj P K-Assistant Professor, MTR Dept.
3. Mr. Ranjith P N-Assistant Professor, MTR Dept.
4. Mr. Antony Richard-Assistant Professor, MTR Dept.
5. Mr. Jishnu V P-Assistant Professor, MTR Dept.

The following decisions were taken:

1. It was decided to conduct a certificate course on "MACHINE KINEMATICS" from 8TH Januvary 2018 to 30th March 2018 for a period of 30 hours.
2. The course will impart knowledge on the latest developments in the field of machine kinematics.
3. It was decided to provide the course for the UG students of Mechatronics students.
4. Also, it was decided to ensure compulsory attendance and staff advisors should monitor the same.

The meeting came to an end at 3:45 PM.

HoD

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ADD ON COURSE SYLLABUS AND SCHEDULE

Since 1968

MACHINE KINEMATICS

Unit 1

Definitions – Link, Kinematic pair, Kinematic chain, Mechanism and Machine - Degree of Freedom – Mobility - Kutzbach criterion (Gruebler's equation) - Grashoff's law - Kinematic Inversions of four-bar chain and slider crank chain - Mechanical Advantage - Transmission angle. Description of common Mechanisms - Offset slider mechanism as quick return mechanisms, Pantograph, Straight line generators (Peaucellier and Watt mechanisms), Steering gear for automobile, Hooke's joint, Toggle mechanism, Ratchets and escapements - Indexing Mechanisms, Steering gear mechanisms such as Davis and Ackermann Steering gear.

Unit 2

Analysis of simple mechanisms (Single slider crank mechanism and four bar mechanism) - Graphical Methods for displacement, velocity and acceleration, velocity and acceleration polygons, Instantaneous Centre of Velocity, Kennedy Theorem, Klein's Construction; Shaping machine mechanism - Coincident points – Coriolis acceleration, Analytical method of analysis of slider crank mechanism and four bar mechanism. Approximate analytical expression for displacement, velocity and acceleration of piston of reciprocating engine mechanism.

Unit 3

CAMS

Classifications - Displacement diagrams - Parabolic, Simple harmonic and Cycloidal motions - Graphical construction of displacement diagrams and layout of plate cam profiles - circular arc and tangent cams.

Unit 4

GEARS

Classification of gears - Gear tooth terminology - Fundamental Law of toothed gearing and involute gearing - Length of path of contact and contact ratio - Interference and undercutting - Gear trains - Simple, compound and Epicyclic gear trains - Differentials.

COURSE SCHEDULE

Commencement of classes: 08-01-2018

Examination Date: 30-03-2018

PROGRAM COORDINATOR **HOD**

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DEPARTMENT OF MECHATRONICS ENGINEERING

MACHINE KINEMATICS

Attendance Sheet

SL. NO.	REG. NO.	NAME OF STUDENT	1/8/18	2/8/18	4/8/18	6/8/18	7/8/18	8/8/18	10/8/18	13/8/18	14/8/18	16/8/18
1	NCAOEMT003	ABHIJITH JOHN	✓	✓	✓	✓	a	✓	✓	✓	a	✓
2	NCAOEMT004	ABY POIUSON	✓	✓	✓	✓	✓	✓	a	✓	✓	a
3	NCAOEMT005	ADARSH MOHAN	✓	✓	✓	✓	✓	✓	a	✓	✓	✓
4	NCAOEMT006	AISWARYA UNNI	✓	a	✓	a	✓	✓	✓	✓	✓	✓
5	NCAOEMT007	AJAY AUGUSTINE	✓	✓	✓	✓	✓	✓	✓	✓	a	✓
6	NCAOEMT008	AKHIL A	✓	✓	a	✓	✓	✓	a	✓	✓	✓
7	NCAOEMT009	AKHIL JOSEPH	✓	✓	✓	✓	✓	✓	✓	a	a	a
8	NCAOEMT010	AKSHAY R	✓	✓	✓	✓	✓	a	✓	✓	✓	✓
9	NCAOEMT011	ALEN BABY	✓	✓	✓	a	✓	✓	✓	✓	✓	✓
10	NCAOEMT017	ANFAL YOUSAFALI	a	✓	✓	✓	✓	✓	✓	✓	✓	✓
11	NCAOEMT018	ARJUN	✓	✓	✓	a	✓	✓	✓	✓	✓	✓
12	NCAOEMT019	ARUN RAJ K	✓	✓	✓	✓	✓	✓	✓	a	✓	✓
13	NCAOEMT020	ASHIK HAMEED SHA A P	✓	✓	✓	✓	✓	✓	a	✓	✓	✓
14	NCAOEMT021	ATHUL AJITH	✓	✓	a	✓	✓	✓	a	✓	✓	✓
15	NCAOEMT022	BASIL T ABRAHAM	✓	✓	✓	✓	✓	✓	✓	✓	a	a
16	NCAOEMT028	GAUTHAM KRISHNA S	✓	✓	✓	✓	a	✓	✓	✓	✓	✓
17	NCAOEMT029	GOPIKA M S	✓	a	✓	✓	✓	✓	✓	✓	✓	✓
18	NCAOEMT030	GOVIND K	✓	✓	✓	✓	✓	a	✓	✓	✓	✓
19	NCAOEMT031	HARIKRISHNAN N	✓	✓	✓	✓	✓	a	✓	✓	✓	✓
20	NCAOEMT032	ISHAN HUSSAIN KALAKKAT	✓	✓	✓	✓	✓	✓	✓	a	✓	✓
21	NCAOEMT037	JINO G THOMAS	✓	✓	✓	✓	✓	✓	✓	✓	a	✓
22	NCAOEMT038	JINU P M	✓	✓	✓	a	✓	✓	✓	✓	✓	✓
23	NCAOEMT039	JITHIN JOSE	✓	✓	✓	✓	✓	a	✓	✓	✓	✓
24	NCAOEMT040	JOHN JOE PADUA	✓	✓	✓	✓	✓	✓	✓	✓	✓	a
25	NCAOEMT041	KAKKAT ALI IBRAHIM	✓	✓	✓	✓	✓	✓	✓	✓	a	✓
26	NCAOEMT053	SETHUMADHAVAN K	✓	✓	a	✓	✓	✓	✓	✓	✓	✓

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27	NCAOEMT054	SHINILNATH	✓	✓	✓	✓	✓	a	✓	✓	✓	a
28	NCAOEMT055	SIDHARTH N PISHARODY	a	✓	a	✓	✓	✓	✓	✓	✓	✓
29	NCAOEMT056	SRIRAG	✓	✓	✓	✓	a	✓	✓	a	✓	✓
30	NCAOEMT057	THAHA MOHAMMED TM	✓	✓	✓	✓	✓	✓	✓	✓	a	✓
31	NCAOEMT058	VISHNU K ANAND	✓	✓	a	✓	✓	✓	✓	✓	✓	✓
32	NCAOEMT060	SUJEETH	✓	✓	✓	a	✓	✓	✓	✓	✓	✓
33	NCAOEMT061	NOBLE VARGHESE	✓	✓	✓	✓	✓	✓	a	✓	a	✓
34	NCE15MC001	ABHIJITH DINESH	✓	a	✓	✓	✓	✓	✓	a	✓	✓
35	NCE15MC002	ABIJITH U K	✓	✓	✓	✓	✓	✓	✓	✓	✓	a
36	NCE15MC003	ADITHYA SURESH	✓	✓	✓	✓	a	✓	✓	✓	✓	✓
37	NCE15MC004	ADITHYA MOHAN	a	✓	✓	✓	✓	✓	✓	✓	✓	✓
38	NCE15MC005	AJAY ANAND C	✓	✓	✓	✓	✓	a	✓	✓	✓	✓
39	NCE15MC006	AKASH A	✓	✓	✓	✓	✓	✓	✓	a	a	✓
40	NCE15MC007	AKHIL CHAND P P	✓	✓	✓	✓	✓	✓	✓	✓	✓	a
41	NCE15MC008	AKSHAYLAL M R	✓	✓	a	a	a	✓	✓	✓	✓	✓
42	NCE15MC009	ALBIN LEO	✓	a	✓	✓	✓	✓	✓	✓	✓	✓
43	NCE15MC013	ANUPAMA R NATH	✓	✓	✓	✓	✓	✓	✓	✓	✓	a
44	NCE15MC014	ARJUN S	✓	✓	✓	✓	✓	✓	✓	a	✓	✓
45	NCE15MC015	ATHIRA MENON	✓	✓	✓	✓	a	✓	✓	✓	✓	✓
46	NCE15MC016	ATHUL K A	a	✓	✓	✓	✓	✓	✓	✓	✓	✓
47	NCE15MC017	ATHUL VAISHNAV C	✓	✓	a	✓	✓	✓	✓	✓	a	✓
48	NCE15MC019	DARIL SILVA	✓	✓	✓	✓	✓	✓	✓	✓	✓	a
49	NCE15MC020	DEEPAK R	✓	✓	✓	✓	✓	a	✓	✓	✓	✓
50	NCE15MC021	DEEPAK SUNIL	✓	✓	✓	✓	✓	a	✓	✓	✓	✓
51	NCE15MC022	DEEPU VINIL	✓	✓	✓	✓	✓	a	✓	✓	✓	✓
52	NCE15MC023	GOVIND K A	✓	✓	✓	✓	✓	a	✓	✓	✓	✓
53	NCE15MC024	HARIHARAN C G	✓	✓	✓	✓	✓	✓	✓	✓	a	a
54	NCE15MC025	JEFINA TERESA JOHNSON	a	✓	✓	✓	✓	✓	✓	✓	✓	✓
55	NCE15MC031	JUBY ELIZEBETH JOHN	✓	a	a	✓	✓	✓	✓	✓	✓	✓
56	NCE15MC032	JUSTIN JOSE	✓	✓	✓	✓	✓	✓	a	✓	✓	✓
57	NCE15MC033	KENES CHRIS	✓	✓	✓	✓	✓	✓	✓	a	a	✓
58	NCE15MC034	KIRAN GEORGE	✓	✓	✓	✓	✓	✓	✓	✓	✓	a
59	NCE15MC035	MARSHEL MARTIN	✓	✓	✓	✓	✓	✓	✓	✓	a	✓
60	NCE15MC036	MOHAMMED HANI SHERIF	✓	✓	✓	a	✓	✓	✓	✓	✓	✓
61	NCE15MC037	MOHAMED JUNAID M C	✓	✓	✓	✓	a	✓	✓	✓	✓	✓
62	NCE15MC038	MOHAMED SHAROOK KHAN	✓	✓	✓	✓	a	✓	✓	✓	✓	✓

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63	NCE15MC040	MOHAMMED SUHAIL T S	✓	✓	✓	✓	✓	✓	✓	✓	✓	a
64	NCE15MC041	MUHAMMED NAMEER P	✓	✓	✓	✓	a	✓	✓	✓	✓	✓
65	NCE15MC048	ROHIT JACOB ROBERT	✓	a	✓	✓	✓	✓	✓	✓	✓	✓
66	NCE15MC049	SACHIN A S	✓	a	✓	a	✓	✓	✓	✓	✓	✓
67	NCE15MC050	SAGAR JOHNY C	✓	✓	✓	✓	✓	✓	✓	a	✓	✓
68	NCE15MC051	SARAS MOHAN	✓	✓	✓	✓	✓	✓	a	✓	✓	✓
69	NCE15MC052	SARUN R KUMAR	✓	✓	✓	✓	✓	✓	✓	✓	a	✓
70	NCE15MC053	SPENCER DAVID	✓	✓	✓	✓	✓	a	✓	✓	✓	✓
71	NCE15MC054	SREEJITH S	✓	✓	✓	a	✓	✓	✓	✓	✓	✓
72	NCE15MC055	SREERAG K R	✓	✓	✓	✓	a	✓	✓	✓	✓	✓
73	NCE15MC056	SUDHARSHAN K	✓	✓	a	✓	✓	✓	✓	✓	✓	✓
74	NCE15MC057	SUDHEESH S	a	✓	✓	✓	✓	✓	✓	✓	a	✓
75	NCE15MC058	VISHNU P V	a	✓	✓	✓	✓	✓	a	✓	✓	✓
76	NCE15MC059	VISHNU CHANDRAN N	✓	✓	✓	✓	✓	✓	✓	✓	✓	a
77	LNCE15MC067	DHEERAJ S	✓	a	✓	✓	✓	✓	✓	a	✓	✓
78	LNCE15MC068	JAYAKRISHNAN A R	✓	✓	✓	✓	✓	✓	✓	a	✓	✓
79	LNCE15MC069	JOBIN JOSEPH	✓	✓	✓	a	✓	✓	✓	a	✓	✓
80	NCE17MC002	Anas Mohammed Ali	✓	✓	✓	✓	✓	✓	✓	a	✓	✓
81	NCE17MC003	Ashish Babu	✓	✓	✓	✓	✓	✓	✓	✓	a	✓
82	NCE17MC006	Mohamed Asarudheen S	✓	✓	✓	✓	a	✓	✓	✓	✓	✓
83	NCE17MC007	Mrudul Mohandas A	✓	✓	✓	✓	a	✓	✓	✓	✓	✓
84	NCE17MC009	Sanjay Sudhakaran	✓	✓	✓	✓	✓	a	✓	✓	✓	✓
85	NCE17MC010	Sibi Shalu	✓	✓	✓	✓	✓	✓	✓	a	✓	✓
86	NCE17MC011	Suryakanth Shenoi R	✓	✓	✓	✓	✓	✓	✓	✓	✓	a
87	NCE17MC013	Vishnu.s	a	✓	✓	✓	✓	✓	a	✓	✓	✓
88	NCE17MC014	Vishnu Suresh Kumar	✓	✓	✓	✓	✓	✓	✓	✓	✓	a

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Pampady, Thiruvilwamala, Thrissur Dt.

DEPARTMENT OF MECHATRONICS ENGINEERING

MACHINE KINEMATICS

Attendance Sheet

SL. NO.	REG. NO.	NAME OF STUDENT	18/8/18	29/8/18	30/8/18	31/8/18	3/9/18	4/9/18	5/9/18	6/9/18	7/9/18	8/9/18
1	NCAOEMT003	ABHIJITH JOHN	✓	✓	✓	✓	a	✓	✓	✓	✓	a
2	NCAOEMT004	ABY POIUSON	✓	✓	✓	✓	✓	✓	✓	a	✓	✓
3	NCAOEMT005	ADARSH MOHAN	✓	a	✓	✓	✓	✓	✓	✓	✓	✓
4	NCAOEMT006	AISWARYA UNNI	✓	✓	✓	✓	✓	✓	✓	✓	a	a
5	NCAOEMT007	AJAY AUGUSTINE	✓	a	✓	✓	✓	✓	✓	✓	✓	✓
6	NCAOEMT008	AKHIL A	✓	✓	✓	✓	✓	✓	✓	✓	✓	a
7	NCAOEMT009	AKHIL JOSEPH	✓	✓	✓	✓	✓	✓	a	✓	✓	a
8	NCAOEMT010	AKSHAY R	a	✓	a	a	✓	✓	✓	✓	✓	✓
9	NCAOEMT011	ALEN BABY	✓	✓	✓	✓	✓	✓	✓	a	✓	✓
10	NCAOEMT017	ANFAL YOUSAFALI	✓	✓	✓	✓	✓	a	✓	✓	✓	a
11	NCAOEMT018	ARJUN	✓	✓	✓	a	✓	✓	✓	✓	✓	✓
12	NCAOEMT019	ARUN RAJ K	✓	✓	✓	a	✓	a	✓	✓	✓	✓
13	NCAOEMT020	ASHIK HAMEED SHA A P	✓	✓	✓	✓	✓	✓	✓	a	✓	✓
14	NCAOEMT021	ATHUL AJITH	✓	✓	✓	✓	✓	✓	a	✓	✓	✓
15	NCAOEMT022	BASIL T ABRAHAM	✓	a	✓	✓	✓	✓	✓	a	a	✓
16	NCAOEMT028	GAUTHAM KRISHNA S	✓	✓	✓	✓	a	✓	✓	✓	✓	✓
17	NCAOEMT029	GOPIKA M S	✓	a	✓	✓	✓	✓	✓	✓	✓	✓
18	NCAOEMT030	GOVIND K	✓	✓	✓	✓	✓	✓	✓	✓	a	✓
19	NCAOEMT031	HARIKRISHNAN N	✓	✓	✓	✓	✓	a	✓	✓	✓	✓
20	NCAOEMT032	ISHAN HUSSAIN KALAKKAT	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
21	NCAOEMT037	JINO G THOMAS	✓	✓	✓	✓	✓	✓	a	✓	✓	✓
22	NCAOEMT038	JINU P.M	✓	✓	✓	✓	✓	✓	✓	a	✓	✓
23	NCAOEMT039	JITHIN JOSE	a	✓	a	✓	✓	✓	✓	a	✓	✓
24	NCAOEMT040	JOHN JOE PADUA	✓	✓	✓	✓	✓	✓	✓	✓	✓	a
25	NCAOEMT041	KAKKAT ALI IBRAHIM	✓	✓	✓	✓	a	✓	✓	✓	✓	✓
26	NCAOEMT053	SETHUMADHAVAN K	✓	✓	✓	✓	✓	✓	✓	a	✓	✓

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27	NCAOEMT054	SHINILNATH	✓	✓	✓	✓	a	✓	✓	✓	✓	✓		
28	NCAOEMT055	SIDHARTH N PISHARODY	✓	✓	✓	✓	a	✓	✓	✓	✓	✓		
29	NCAOEMT056	SRIRAG	✓	a	✓	✓	a	✓	✓	✓	✓	✓		
30	NCAOEMT057	THAHA MOHAMMED TM	✓	✓	✓	✓	✓	✓	a	✓	✓	✓		
31	NCAOEMT058	VISHNU K ANAND	✓	a	✓	✓	✓	✓	✓	✓	✓	✓		
32	NCAOEMT060	SUJEETH	✓	✓	✓	✓	✓	✓	✓	a	✓	✓		
33	NCAOEMT061	NOBLE VARGHESE	✓	✓	✓	✓	✓	✓	✓	✓	a	✓		
34	NCE15MC001	ABHIJITH DINESH	✓	✓	✓	✓	✓	a	✓	✓	✓	✓		
35	NCE15MC002	ABIJITH U K	✓	✓	✓	a	✓	✓	✓	✓	✓	✓		
36	NCE15MC003	ADITHYA SURESH	✓	✓	a	✓	✓	✓	✓	✓	✓	✓		
37	NCE15MC004	ADITHYA MOHAN	✓	a	✓	✓	✓	✓	✓	✓	✓	✓		
38	NCE15MC005	AJAY ANAND C	✓	✓	✓	✓	✓	a	✓	✓	✓	a		
39	NCE15MC006	AKASH A	✓	✓	a	✓	✓	✓	✓	✓	✓	✓		
40	NCE15MC007	AKHIL CHAND P P	✓	✓	✓	✓	✓	✓	a	✓	✓	✓		
41	NCE15MC008	AKSHAYLAL M R	✓	✓	✓	✓	✓	✓	✓	✓	a	✓		
42	NCE15MC009	ALBIN LEO	✓	✓	✓	✓	✓	✓	✓	✓	a	✓		
43	NCE15MC013	ANUPAMA R NATH	a	✓	✓	✓	✓	✓	✓	✓	a	✓		
44	NCE15MC014	ARJUN S	✓	✓	✓	✓	✓	✓	✓	✓	a	✓		
45	NCE15MC015	ATHIRA MENON	✓	✓	✓	✓	a	✓	✓	✓	✓	✓		
46	NCE15MC016	ATHUL K A	✓	✓	✓	✓	✓	a	✓	✓	✓	✓		
47	NCE15MC017	ATHUL VAISHNAV C	✓	✓	✓	✓	✓	a	✓	✓	✓	✓		
48	NCE15MC019	DARIL SILVA	✓	✓	✓	✓	✓	✓	a	✓	✓	✓		
49	NCE15MC020	DEEPAK R	✓	a	✓	✓	✓	✓	✓	✓	✓	✓		
50	NCE15MC021	DEEPAK SUNIL	✓	✓	✓	✓	✓	✓	✓	✓	a	✓		
51	NCE15MC022	DEEPU VINIL	✓	✓	✓	✓	✓	✓	✓	✓	a	a		
52	NCE15MC023	GOVIND K A	✓	✓	✓	a	✓	✓	✓	✓	✓	✓		
53	NCE15MC024	HARIHARAN C G	✓	✓	✓	✓	✓	✓	✓	a	✓	✓		
54	NCE15MC025	JEFINA TERESA JOHNSON	✓	a	✓	✓	✓	✓	✓	✓	✓	✓		
55	NCE15MC031	JUBY ELIZEBETH JOHN	a	✓	✓	✓	✓	✓	✓	✓	✓	✓		
56	NCE15MC032	JUSTIN JOSE	✓	✓	✓	✓	✓	a	✓	✓	✓	a		
57	NCE15MC033	KENES CHRIS	✓	✓	a	✓	✓	✓	✓	✓	✓	✓		
58	NCE15MC034	KIRAN GEORGE	✓	✓	a	✓	✓	✓	✓	✓	a	✓		
59	NCE15MC035	MARSHEL MARTIN	✓	✓	a	✓	✓	✓	✓	✓	✓	✓		
60	NCE15MC036	MOHAMMED HANI SHERIF	✓	✓	✓	✓	a	✓	✓	✓	✓	a		
61	NCE15MC037	MOHAMED JUNAID M C	✓	✓	✓	a	✓	✓	✓	✓	✓			
62	NCE15MC038	MOHAMED SHAROOK KHAN	✓	a	✓	✓	✓	✓	✓	✓	✓	a		

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63	NCE15MC040	MOHAMMED SUHAIL T S	✓	a	✓	✓	✓	✓	✓	✓	✓	✓
64	NCE15MC041	MUHAMMED NAMEER P	✓	✓	✓	✓	✓	✓	✓	✓	a	a
65	NCE15MC048	ROHIT JACOB ROBERT	✓	✓	✓	✓	a	✓	✓	✓	✓	✓
66	NCE15MC049	SACHIN A S	✓	✓	✓	✓	✓	✓	✓	✓	a	✓
67	NCE15MC050	SAGAR JOHNY C	✓	✓	✓	✓	✓	✓	✓	a	✓	✓
68	NCE15MC051	SARAS MOHAN	✓	✓	✓	✓	✓	a	✓	✓	✓	✓
69	NCE15MC052	SARUN R KUMAR	✓	✓	✓	✓	✓	✓	a	✓	✓	✓
70	NCE15MC053	SPENCER DAVID	✓	✓	✓	a	✓	✓	✓	✓	✓	✓
71	NCE15MC054	SREEJITH S	✓	a	✓	✓	✓	✓	✓	✓	✓	✓
72	NCE15MC055	SREERAG K R	✓	✓	a	✓	✓	✓	✓	✓	✓	✓
73	NCE15MC056	SUDHARSHAN K	✓	✓	✓	✓	✓	✓	✓	✓	✓	a
74	NCE15MC057	SUDHEESH S	✓	✓	✓	a	✓	✓	✓	✓	✓	✓
75	NCE15MC058	VISHNU P V	✓	✓	✓	a	✓	✓	✓	✓	✓	✓
76	NCE15MC059	VISHNU CHANDRAN N	✓	✓	✓	✓	✓	✓	a	✓	✓	✓
77	LNCE15MC067	DHEERAJ S	✓	✓	✓	✓	✓	a	✓	✓	✓	✓
78	LNCE15MC068	JAYAKRISHNAN A R	✓	✓	a	✓	✓	✓	✓	✓	✓	✓
79	LNCE15MC069	JOBIN JOSEPH	✓	a	✓	✓	✓	✓	✓	✓	✓	✓
80	NCE17MC002	Anas Mohammed Ali	✓	✓	a	✓	✓	✓	✓	✓	✓	✓
81	NCE17MC003	Ashish Babu	✓	✓	✓	✓	a	✓	✓	✓	✓	✓
82	NCE17MC006	Mohamed Asarudheen S	✓	✓	✓	✓	✓	✓	✓	✓	✓	a
83	NCE17MC007	Mrudul Mohandas A	✓	a	✓	✓	✓	✓	✓	✓	✓	✓
84	NCE17MC009	Sanjay Sudhakaran	a	✓	✓	✓	✓	✓	✓	✓	✓	a
85	NCE17MC010	Sibi Shalu	✓	✓	✓	✓	✓	✓	✓	✓	a	✓
86	NCE17MC011	Suryakanth Shenoi R	✓	✓	✓	a	✓	✓	✓	✓	✓	✓
87	NCE17MC013	Vishnu.s	✓	✓	✓	✓	✓	✓	✓	a	✓	✓
88	NCE17MC014	Vishnu Suresh Kumar	✓	✓	✓	✓	✓	✓	✓	a	✓	✓

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Pampady, Thiruvilwamala, Thrissur Dt.

DEPARTMENT OF MECHATRONICS ENGINEERING

MACHINE KINEMATICS

Attendance Sheet

SL. NO.	REG. NO.	NAME OF STUDENT	15/9/15	15/9/15	17/9/15	20/9/15	22/9/15	22/9/15	27/9/15	29/9/15	6/10/15	6/10/15
1	NCAOEMT003	ABHIJITH JOHN	✓	✓	✓	a	✓	✓	✓	✓	✓	✓
2	NCAOEMT004	ABY POIUSON	✓	a	✓	✓	✓	✓	✓	✓	✓	a
3	NCAOEMT005	ADARSH MOHAN	a	a	✓	✓	✓	✓	✓	a	a	✓
4	NCAOEMT006	AISWARYA UNNI	✓	✓	✓	a	✓	a	a	✓	✓	✓
5	NCAOEMT007	AJAY AUGUSTINE	✓	✓	a	a	✓	✓	✓	✓	✓	✓
6	NCAOEMT008	AKHIL A	✓	✓	✓	✓	a	✓	✓	✓	a	a
7	NCAOEMT009	AKHIL JOSEPH	✓	a	✓	✓	✓	✓	✓	✓	✓	✓
8	NCAOEMT010	AKSHAY R	✓	✓	✓	✓	✓	✓	a	✓	✓	✓
9	NCAOEMT011	ALEN BABY	✓	✓	a	✓	✓	✓	✓	✓	✓	✓
10	NCAOEMT017	ANFAL YOUSAFALI	✓	✓	✓	✓	✓	✓	✓	✓	a	✓
11	NCAOEMT018	ARJUN	a	✓	✓	✓	✓	✓	✓	✓	✓	a
12	NCAOEMT019	ARUN RAJ K	✓	✓	✓	✓	✓	a	✓	✓	a	✓
13	NCAOEMT020	ASHIK HAMEED SHA A P	✓	a	✓	✓	✓	✓	✓	✓	✓	✓
14	NCAOEMT021	ATHUL AJITH	✓	✓	✓	✓	a	a	✓	✓	✓	✓
15	NCAOEMT022	BASIL T ABRAHAM	✓	✓	✓	✓	a	✓	a	✓	✓	✓
16	NCAOEMT028	GAUTHAM KRISHNA S	✓	✓	a	✓	a	✓	✓	✓	✓	✓
17	NCAOEMT029	GOPIKA M S	✓	✓	✓	✓	✓	a	✓	✓	✓	✓
18	NCAOEMT030	GOVIND K	a	✓	✓	✓	✓	✓	✓	✓	a	✓
19	NCAOEMT031	HARIKRISHNAN N	✓	✓	✓	✓	✓	✓	✓	a	a	✓
20	NCAOEMT032	ISHAN HUSSAIN KALAKKAT	✓	✓	✓	a	✓	✓	✓	✓	✓	✓
21	NCAOEMT037	JINO G THOMAS	✓	a	✓	✓	✓	✓	✓	✓	✓	✓
22	NCAOEMT038	JINU P M	✓	✓	✓	✓	✓	a	✓	✓	✓	✓
23	NCAOEMT039	JITHIN JOSE	✓	✓	✓	✓	✓	✓	✓	✓	✓	a
24	NCAOEMT040	JOHN JOE PADUA	✓	✓	✓	✓	a	✓	✓	✓	✓	a
25	NCAOEMT041	KAKKAT ALI IBRAHIM	✓	a	✓	✓	✓	✓	✓	✓	✓	a
26	NCAOEMT053	SETHUMADHAVAN K	✓	✓	✓	✓	✓	✓	a	✓	✓	✓

NEHRU COLLEGE OF ENGINEERING & RESEARCH CENTRE PAMPADY THRISSUR DT.

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Pin - 680 597, Kerala

27	NCAOEMT054	SHINILNATH	✓	✓	a	✓	✓	✓	✓	✓	✓	a
28	NCAOEMT055	SIDHARTH N PISHARODY	a	✓	✓	✓	a	✓	✓	✓	✓	✓
29	NCAOEMT056	SRIRAG	✓	✓	✓	✓	✓	✓	a	✓	✓	a
30	NCAOEMT057	THAHA MOHAMMED TM	✓	a	✓	✓	✓	✓	✓	✓	a	✓
31	NCAOEMT058	VISHNU K ANAND	✓	✓	✓	a	a	✓	✓	✓	✓	✓
32	NCAOEMT060	SUJEETH	✓	✓	✓	✓	a	✓	✓	✓	✓	✓
33	NCAOEMT061	NOBLE VARGHESE	✓	✓	✓	✓	a	✓	✓	✓	✓	✓
34	NCE15MC001	ABHIJITH DINESH	✓	✓	✓	✓	✓	✓	✓	a	✓	✓
35	NCE15MC002	ABIJITH U K	✓	✓	✓	✓	a	✓	✓	✓	✓	✓
36	NCE15MC003	ADITHYA SURESH	✓	✓	✓	✓	✓	✓	a	✓	✓	✓
37	NCE15MC004	ADITHYA MOHAN	✓	✓	✓	✓	✓	✓	✓	a	✓	✓
38	NCE15MC005	AJAY ANAND C	✓	✓	✓	✓	✓	✓	a	✓	✓	✓
39	NCE15MC006	AKASH A	✓	✓	✓	✓	✓	a	✓	✓	✓	✓
40	NCE15MC007	AKHIL CHAND P P	✓	a	✓	a	✓	✓	✓	✓	✓	✓
41	NCE15MC008	AKSHAYLAL M R	✓	✓	✓	a	✓	✓	✓	✓	✓	✓
42	NCE15MC009	ALBIN LEO	✓	✓	✓	✓	✓	✓	✓	✓	a	✓
43	NCE15MC013	ANUPAMA R NATH	✓	✓	✓	✓	✓	✓	a	a	✓	✓
44	NCE15MC014	ARJUN S	✓	✓	✓	✓	✓	✓	✓	✓	✓	a
45	NCE15MC015	ATHIRA MENON	✓	✓	✓	✓	✓	✓	✓	a	✓	✓
46	NCE15MC016	ATHUL K A	✓	✓	✓	✓	✓	✓	a	✓	✓	✓
47	NCE15MC017	ATHUL VAISHNAV C	✓	✓	✓	✓	✓	a	✓	✓	✓	✓
48	NCE15MC019	DARIL SILVA	✓	✓	✓	a	✓	✓	a	✓	✓	✓
49	NCE15MC020	DEEPAK R	✓	a	✓	✓	✓	✓	✓	✓	✓	a
50	NCE15MC021	DEEPAK SUNIL	✓	✓	✓	✓	✓	a	✓	✓	✓	✓
51	NCE15MC022	DEEPU VINIL	✓	✓	✓	✓	✓	✓	✓	a	✓	✓
52	NCE15MC023	GOVIND K A	✓	✓	a	✓	✓	✓	✓	✓	✓	✓
53	NCE15MC024	HARIHARAN C G	✓	✓	✓	✓	✓	✓	✓	✓	a	✓
54	NCE15MC025	JEFINA TERESA JOHNSON	✓	✓	✓	✓	✓	✓	✓	✓	a	✓
55	NCE15MC031	JUBY ELIZEBETH JOHN	✓	✓	✓	✓	✓	✓	✓	a	✓	✓
56	NCE15MC032	JUSTIN JOSE	✓	✓	✓	✓	✓	✓	a	✓	✓	✓
57	NCE15MC033	KENES CHRIS	✓	✓	✓	a	✓	✓	✓	✓	✓	✓
58	NCE15MC034	KIRAN GEORGE	✓	✓	✓	✓	✓	✓	✓	✓	a	✓
59	NCE15MC035	MARSHEL MARTIN	✓	✓	a	✓	✓	✓	✓	✓	✓	✓
60	NCE15MC036	MOHAMMED HANI SHERIF	✓	✓	✓	✓	a	✓	✓	✓	✓	✓
61	NCE15MC037	MOHAMED JUNAID M C	✓	a	✓	✓	✓	✓	✓	✓	✓	✓
62	NCE15MC038	MOHAMED SHAROOK KHAN	✓	✓	✓	✓	a	✓	✓	✓	✓	✓

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63	NCE15MC040	MOHAMMED SUHAIL T S	✓	✓	✓	✓	✓	a	✓	✓	✓	✓
64	NCE15MC041	MUHAMMED NAMEER P	✓	✓	✓	✓	✓	✓	✓	a	✓	✓
65	NCE15MC048	ROHIT JACOB ROBERT	a	✓	✓	✓	✓	✓	✓	✓	✓	✓
66	NCE15MC049	SACHIN A S	✓	✓	✓	✓	✓	✓	✓	✓	a	✓
67	NCE15MC050	SAGAR JOHNY C	✓	✓	a	✓	✓	✓	✓	✓	✓	✓
68	NCE15MC051	SARAS MOHAN	✓	a	✓	✓	✓	✓	✓	✓	✓	✓
69	NCE15MC052	SARUN R KUMAR	✓	✓	✓	✓	✓	✓	a	✓	✓	✓
70	NCE15MC053	SPENCER DAVID	a	✓	✓	a	✓	✓	✓	✓	✓	a
71	NCE15MC054	SREEJITH S	✓	✓	✓	✓	✓	✓	✓	a	✓	✓
72	NCE15MC055	SREERAG K R	✓	✓	✓	✓	a	✓	✓	✓	✓	✓
73	NCE15MC056	SUDHARSHAN K	✓	✓	✓	✓	✓	a	a	✓	✓	✓
74	NCE15MC057	SUDHEESH S	✓	✓	✓	✓	✓	✓	✓	✓	a	✓
75	NCE15MC058	VISHNU P V	✓	a	✓	✓	✓	✓	✓	✓	✓	✓
76	NCE15MC059	VISHNU CHANDRAN N	✓	✓	✓	✓	✓	✓	✓	✓	a	a
77	LNCE15MC067	DHEERAJ S	✓	✓	✓	✓	✓	✓	✓	a	✓	✓
78	LNCE15MC068	JAYAKRISHNAN A R	✓	a	a	✓	✓	✓	✓	✓	✓	✓
79	LNCE15MC069	JOBIN JOSEPH	✓	✓	✓	✓	✓	✓	a	✓	✓	✓
80	NCE17MC002	Anas Mohammed Ali	✓	✓	✓	✓	a	✓	✓	✓	✓	✓
81	NCE17MC003	Ashish Babu	a	✓	✓	✓	✓	✓	✓	✓	✓	✓
82	NCE17MC006	Mohamed Asarudheen S	✓	✓	✓	a	✓	✓	✓	✓	✓	✓
83	NCE17MC007	Mrudul Mohandas A	✓	✓	✓	✓	✓	a	✓	✓	✓	✓
84	NCE17MC009	Sanjay Sudhakaran	✓	✓	✓	✓	✓	✓	✓	✓	a	a
85	NCE17MC010	Sibi Shalu	✓	✓	✓	✓	a	✓	✓	✓	✓	✓
86	NCE17MC011	Suryakanth Shenoi R	✓	✓	✓	✓	✓	✓	a	✓	✓	✓
87	NCE17MC013	Vishnu.s	✓	✓	✓	✓	✓	✓	✓	a	✓	✓
88	NCE17MC014	Vishnu Suresh Kumar	✓	✓	✓	✓	✓	✓	✓	✓	✓	a

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MACHINE KINEMATICS

1. C
2. B
3. A
4. A
5. B
6. A
7. B
8. C
9. B
10. B
11. B
12. A
13. C
14. C
15. A
16. A
17. D
18. A
19. C
20. C
21. D
22. B
23. D
24. A
25. A
26. D
27. D
28. A
29. B
30. D
31. A
32. C
33. A
34. B
35. B

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36. A
37. D
38. B
39. C
40. A
41. A
42. B
43. B
44. D
45. B
46. A
47. A
48. C
49. C
50. D

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MACHINE KINEMATICS

84/100

1. The unit of linear acceleration is
a) kg-m
b) m/s
c) m/s^2
d) rad/s^2 ✓

2. The angular velocity (in rad/s) of a body rotating at N r.p.m. is
a) $\pi N/60$
b) $2\pi N/60$
c) $\pi N/120$
d) $\pi N/180$

3. The linear velocity of a body rotating at ω rad/s along a circular path of radius r is given by
a) ω.r
b) ω/r
c) $\omega s^2.r$
d) $\omega s^2/r$

4. When a particle moves along a straight path, then the particle has
a) tangential acceleration only
b) centripetal acceleration only
c) both tangential and centripetal acceleration
d) none of the mentioned

5. When a particle moves with a uniform velocity along a circular path, then the particle has
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6. When the motion of a body is confined to only one plane, the motion is said to be
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d) none of the mentioned

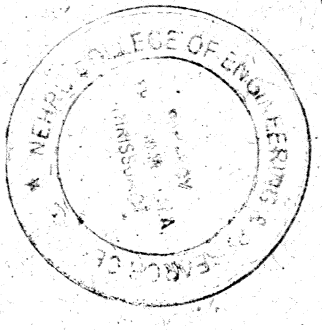
7. _____ is the simplest type of motion and is along a straight line path.
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d) none of the mentioned

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9. Displacement of a body is a _____ quantity.
a) scalar
b) vector
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d) none of the mentioned

10. A train covers 60 miles between 2 p.m. and 4 p.m. How fast was it going at 3 p.m.?
a) 60 mph
b) 30 mph
c) 40 mph
d) 50 mph

11. A car starts from rest and accelerates uniformly to a speed of 72 km. p.h. over a distance of 500 m. Calculate the acceleration.
a) 0.3 m/s^2
b) 0.4 m/s^2
c) 0.5 m/s^2
d) 0.6 m/s^2



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12. A car starts from rest and accelerates uniformly to a speed of 72 km. p.h. over a distance of 500 m. Calculate the time taken to attain the speed.

a) 50 s
b) 60 s
c) 70 s
d) 80 s

13. A car starts from rest and accelerates uniformly to a speed of 72 km. p.h. over a distance of 500 m. If a further acceleration raises the speed to 90 km. p.h. in 10 seconds, find this acceleration and the further distance moved.

a) 0.3 m/s^2
b) 0.4 m/s^2
c) 0.5 m/s^2
d) 0.6 m/s^2

14. A car starts from rest and accelerates uniformly to a speed of 72 km. p.h. over a distance of 500 m. A further acceleration raises the speed to 90 km. p.h. in 10 seconds.The brakes are now applied to bring the car to rest under uniform retardation in 5 seconds. Find the distance travelled during braking.

a) 200 m
b) 300 m
c) 225 m
d) 335 m

15. A wheel accelerates uniformly from rest to 2000 r.p.m. in 20 seconds. What is its angular acceleration?

a) 10.475 rad/s^2
b) 11.475 rad/s^2
c) 12.475 rad/s^2
d) 13.475 rad/s^2

16. A wheel accelerates uniformly from rest to 2000 r.p.m. in 20 seconds.How many revolutions does the wheel make in attaining the speed of 2000 r.p.m.?

a) 333.4
b) 444.4
c) 555.4
d) 666.4
a) 10.475 rad/s^2

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b) 11.475 rad/s^2
c) 12.475 rad/s^2
d) 13.475 rad/s^2

17. A horizontal bar 1.5 metres long and of small cross-section rotates about vertical axis through one end. It accelerates uniformly from 1200 r.p.m. to 1500 r.p.m. in an interval of 5 seconds. What is the linear velocity at the beginning?
a) 288.6 m/s
b) 388.6 m/s
c) 488.6 m/s
d) 188.6 m/s

18. A horizontal bar 1.5 metres long and of small cross-section rotates about vertical axis through one end. It accelerates uniformly from 1200 r.p.m. to 1500 r.p.m. in an interval of 5 seconds. What is the linear velocity at the end of the interval ?
a) 235.5 m/s
b) 335.5 m/s
c) 435.5 m/s
d) 535.5 m/s

19. A horizontal bar 1.5 metres long and of small cross-section rotates about vertical axis through one end. It accelerates uniformly from 1200 r.p.m. to 1500 r.p.m. in an interval of 5 seconds. What is the normal component of the acceleration of the mid-point of the bar after 5 seconds after the acceleration begins ?
a) 2.7 m/s^2
b) 3.7 m/s^2
c) 4.7 m/s^2
d) 5.7 m/s^2

20. A horizontal bar 1.5 metres long and of small cross-section rotates about vertical axis through one end. It accelerates uniformly from 1200 r.p.m. to 1500 r.p.m. in an interval of 5 seconds. What is the tangential component of the acceleration of the mid-point of the bar after 5 seconds after the acceleration begins ?
a) 18287 m/s^2
b) 18387 m/s^2
c) 18487 m/s^2
d) 18587 m/s^2

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21. Which of the following shape of the body can be considered as compound pendulum?
a) Cylindrical
b) Cubical
c) Cuboidal
d) Any rigid body

22. Compound pendulum needs to be spherical in shape.
a) True
b) False

23. If the mass of the object is doubled then what will be the effect of time period of the compound pendulum?
a) Doubled
b) Remains same
c) Halved
d) Decreases by $\sqrt{2}$ times

24. If the mass moment inertia of the object is increased to 4 times then what will be the effect of time period of the compound pendulum?
a) Doubled
b) Remains same
c) Halved
d) Decreases by $\sqrt{2}$ times

25. Calculate the time period of an object having mass moment of inertia = 100 Kg-m^2, mass of 10 Kg and the centre of gravity lies at a point 20 cm below the point of suspension.
a) 14.1
b) 15.2
c) 13.3
d) 12.9

26. Calculate the frequency of vibration in Hz of an object having mass moment of inertia = 100 Kg-m^2, mass of 10 Kg and the centre of gravity lies at a point 20 cm below the point of suspension.
a) 0.14
b) 0.15
c) 0.13

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d) 0.07

27. Calculate the moment of inertia of an object having time period = 14 sec, mass of 10 Kg and the centre of gravity lies at a point 20 cm below the point of suspension.
a) 94.1
b) 95.2
c) 93.3
d) 97.4

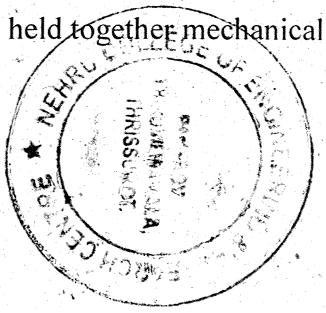
28. All simple pendulums are compound pendulums.
a) True
b) False

29. If the mass moment inertia of the object is increased to 4 times then what will be the effect of time period of the simple pendulum?
a) Doubled
b) Remains same
c) Halved
d) Decreases by $\sqrt{2}$ times

30. Calculate the moment of inertia of an object having time period = 14 sec, mass moment of inertia= 100 Kg-m^2 and the centre of gravity lies at a point 20 cm below the point of suspension.
a) 9.1
b) 9.2
c) 9.3
d) 10.2

31. The approximate straight line mechanism is a
a) 4 bar linkage
b) 6 bar linkage
c) 8 bar linkage
d) 3 bar linkage

32. Open pairs are those which have
a) point or line contact between the two elements when in motion
b) surface contact between the two elements when in motion
c) elements of pairs not held together mechanically



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d) two elements that permit relative motion

33. Peaucellier mechanism has
a) 8 links
b) 6 links
c) 4 links
d) 5 links

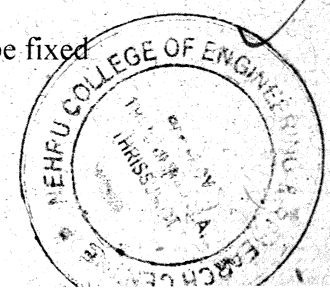
34. Hart mechanism has
a) 8 links
b) 6 links
c) 4 links
d) 5 links

35. A chain comprises of 5 links having 5 joints. Is it kinematic chain?
a) Yes
b) No
c) It is a marginal case
d) None of the mentioned

36. In the following equation [L = 2/3(J + 2)] to determine whether or not the given chain in kinematic, higher pair is treated equivalent to
a) two lower pairs and an additional links
b) two higher pairs and two additional links
c) one lower pairs and two additional links
d) none of the mentioned

37. The main disadvantage of the sliding pair is that it is
a) bulky
b) difficult to manufacture
c) wears rapidly
d) both a and c

38. For a kinematic chain to be considered as mechanism
a) two links should be fixed
b) one link should be fixed
c) none of the links should be fixed



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d) there is no such criterion

39. An eccentric sheave pivoted at one point rotates and transmits oscillatory motion to a link whose one end is pivoted and other end is connected to it. This mechanism has
a) 2 links
b) 3 links
c) 4 links
d) 5 links

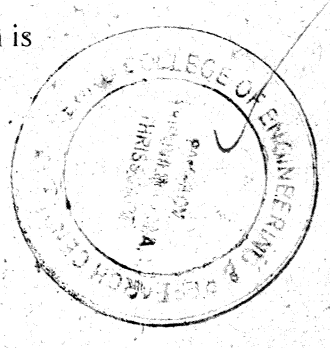
40. Whitworth quick return mechanism is obtained by inversion of
a) slider crank mechanism
b) kinematic chain
c) five link mechanism
d) roller cam mechanism

41. The direction of Corioli's component of acceleration is the direction
a) of relative velocity vector for the two coincident points rotated by 90^0 in the direction of the angular velocity of the rotation of the link
b) along the centripetal acceleration
c) along tangential acceleration
d) along perpendicular to angular velocity

42. In a shaper mechanism, the Corioli's component of acceleration will
a) not exist
b) exist
c) depend on position of crank
d) none of the mentioned

43. The magnitude of tangential acceleration is equal to
a) velocity^2 x crank radius
b) velocity^2/ crank radius
c) (velocity/ crank radius)^2
d) velocity x crank radius^2

44. Tangential acceleration direction is
a) along the angular velocity
b) opposite to angular velocity
c) perpendicular to angular velocity



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d) all of the mentioned

45. The magnitude of the Corioli's component of acceleration of a slider moving at velocity V on a link rotating at angular speed ω is
a) Vω
b) 2Vω
c) Vω/2
d) 2V/ω

46. In a rotary engine the angular velocity of the cylinder center line is 25 rad/sec and the relative velocity of a point on the cylinder center line w.r.t. cylinder is 10 m/sec. Corioli's acceleration will be
a) 500m/sec^2
b) 250m/sec^2
c) 1000m/sec^2
d) 2000m/sec^2

47. Corioli's component is encountered in
a) quick return mechanism of shaper
b) four bar chain mechanism
c) slider crank mechanism
d) all of the mentioned

48. Klein's construction gives a graphical construction for
a) slider-crank mechanism
b) velocity polygon
c) acceleration polygon
d) none of the mentioned

49. The velocity of a slider with reference to a fixed point about which a bar is rotating and slider sliding on the bar will be
a) parallel to bar
b) perpendicular to bar
c) both of the mentioned
d) none of the mentioned

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50. Klien's construction can be used to determine acceleration of various parts when the crank is at

a) inner dead center

b) outer dead center

c) right angles to the link of the stroke

d) all of the mentioned

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MACHINE KINEMATICS

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a) kg-m
b) m/s
c) m/s^2 X
d) rad/s^2

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2. The angular velocity (in rad/s) of a body rotating at N r.p.m. is
a) π N/60
b) 2 π N/60
c) π N/120 X
d) π N/180

3. The linear velocity of a body rotating at ω rad/s along a circular path of radius r is given by
a) $\omega.r$
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c) 0.5 m/s^2
d) 0.6 m/s^2

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c) 0.5 m/s^2
d) 0.6 m/s^2

14. A car starts from rest and accelerates uniformly to a speed of 72 km. p.h. over a distance of 500 m. A further acceleration raises the speed to 90 km. p.h. in 10 seconds. The brakes are now applied to bring the car to rest under uniform retardation in 5 seconds. Find the distance travelled during braking.

a) 200 m
b) 300 m
c) 225 m
d) 335 m

15. A wheel accelerates uniformly from rest to 2000 r.p.m. in 20 seconds. What is its angular acceleration?

a) 10.475 rad/s^2
b) 11.475 rad/s^2
c) 12.475 rad/s^2
d) 13.475 rad/s^2

16. A wheel accelerates uniformly from rest to 2000 r.p.m. in 20 seconds. How many revolutions does the wheel make in attaining the speed of 2000 r.p.m.?

a) 333.4
b) 444.4
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d) 666.4

a) 10.475 rad/s^2

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b) 11.475 rad/s^2
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17. A horizontal bar 1.5 metres long and of small cross-section rotates about vertical axis through one end. It accelerates uniformly from 1200 r.p.m. to 1500 r.p.m. in an interval of 5 seconds. What is the linear velocity at the beginning?
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a) 2.7 m/s^2
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c) 4.7 m/s^2
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20. A horizontal bar 1.5 metres long and of small cross-section rotates about vertical axis through one end. It accelerates uniformly from 1200 r.p.m. to 1500 r.p.m. in an interval of 5 seconds. What is the tangential component of the acceleration of the mid-point of the bar after 5 seconds after the acceleration begins ?
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21. Which of the following shape of the body can be considered as compound pendulum?
a) Cylindrical
b) Cubical
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26. Calculate the frequency of vibration in Hz of an object having mass moment of inertia = 100 Kg-m^2, mass of 10 Kg and the centre of gravity lies at a point 20 cm below the point of suspension.
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c) 9.3
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a) 4 bar linkage
b) 6 bar linkage
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d) two elements that permit relative motion

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d) there is no such criterion

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a) of relative velocity vector for the two coincident points rotated by 90^0 in the direction of the angular velocity of the rotation of the link
b) along the centripetal acceleration
c) along tangential acceleration
d) along perpendicular to angular velocity

42. In a shaper mechanism, the Corioli's component of acceleration will
a) not exist
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43. The magnitude of tangential acceleration is equal to
a) velocity^2 x crank radius
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d) all of the mentioned

45. The magnitude of the Corioli's component of acceleration of a slider moving at velocity V on a link rotating at angular speed ω is
a) Vω
b) 2Vω
c) Vω/2
d) 2V/ω

46. In a rotary engine the angular velocity of the cylinder center line is 25 rad/sec and the relative velocity of a point on the cylinder center line w.r.t. cylinder is 10 m/sec. Corioli's acceleration will be
a) 500m/sec^2
b) 250m/sec^2
c) 1000m/sec^2
d) 2000m/sec^2

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a) quick return mechanism of shaper
b) four bar chain mechanism
c) slider crank mechanism
d) all of the mentioned

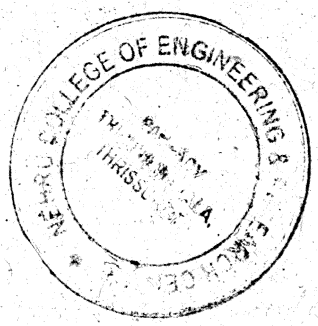
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50. Klien's construction can be used to determine acceleration of various parts when the crank is at

a) inner dead center
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MACHINE KINEMATICS

1. The unit of linear acceleration is
a) kg-m
b) m/s
c) m/s^2
d) rad/s^2

2. The angular velocity (in rad/s) of a body rotating at N r.p.m. is
a) π N/60
b) 2π N/60
c) π N/120
d) π N/180

18/100

3. The linear velocity of a body rotating at ω rad/s along a circular path of radius r is given by
a) $\omega.r$
b) ω/r
c) $\omega s^2.r$
d) $\omega s^2/r$

4. When a particle moves along a straight path, then the particle has
a) tangential acceleration only
b) centripetal acceleration only
c) both tangential and centripetal acceleration
d) none of the mentioned

5. When a particle moves with a uniform velocity along a circular path, then the particle has
a) tangential acceleration only
b) centripetal acceleration only
c) both tangential and centripetal acceleration
d) none of the mentioned

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6. When the motion of a body is confined to only one plane, the motion is said to be
a) plane motion
b) rectilinear motion
c) curvilinear Motion
d) none of the mentioned

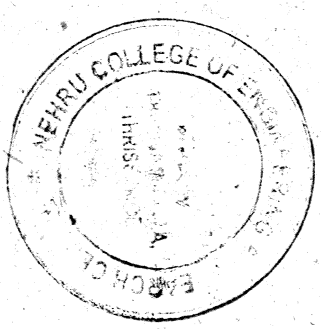
7. _____ is the simplest type of motion and is along a straight line path.
a) plane motion
b) rectilinear motion
c) curvilinear Motion
d) none of the mentioned

8. _____ is the motion along a curved path.
a) plane motion
b) rectilinear motion
c) curvilinear Motion
d) none of the mentioned

9. Displacement of a body is a _____ quantity.
a) scalar
b) vector
c) scalar and vector
d) none of the mentioned

10. A train covers 60 miles between 2 p.m. and 4 p.m. How fast was it going at 3 p.m.?
a) 60 mph
b) 30 mph
c) 40 mph
d) 50 mph

11. A car starts from rest and accelerates uniformly to a speed of 72 km. p.h. over a distance of 500 m. Calculate the acceleration.
a) 0.3 m/s^2
b) 0.4 m/s^2
c) 0.5 m/s^2
d) 0.6 m/s^2



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12. A car starts from rest and accelerates uniformly to a speed of 72 km. p.h. over a distance of 500 m. Calculate the time taken to attain the speed.

a) 50 s
b) 60 s
c) 70 s
d) 80 s

13. A car starts from rest and accelerates uniformly to a speed of 72 km. p.h. over a distance of 500 m. If a further acceleration raises the speed to 90 km. p.h. in 10 seconds, find this acceleration and the further distance moved.

a) 0.3 m/s^2
b) 0.4 m/s^2
c) 0.5 m/s^2
d) 0.6 m/s^2

14. A car starts from rest and accelerates uniformly to a speed of 72 km. p.h. over a distance of 500 m. A further acceleration raises the speed to 90 km. p.h. in 10 seconds. The brakes are now applied to bring the car to rest under uniform retardation in 5 seconds. Find the distance travelled during braking.

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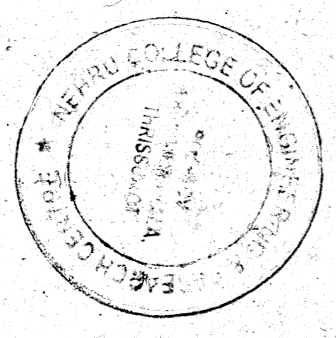
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a) True
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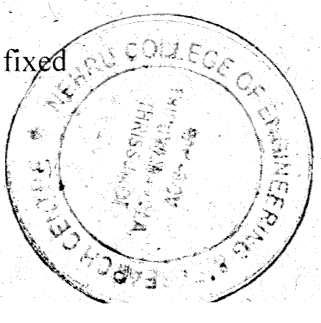
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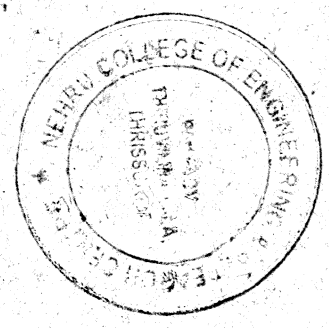
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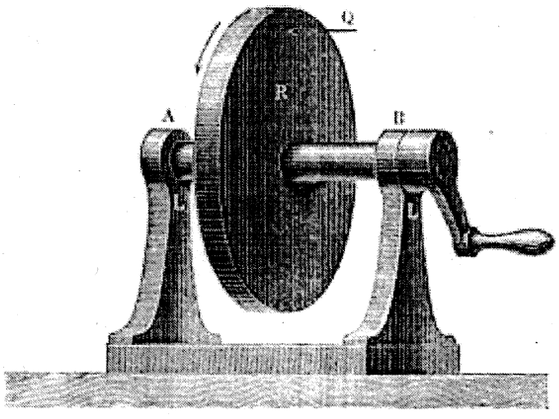


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PROGRAM CO-ORDINATOR

HEAD OF DEPARTMENT

PRINCIPAL
Nehru College of
Engineering and Research Centre
Pampady Thiruvilwamala, Thrissur Dt.
Pin 680 597 Kerala

NEHRU GROUP OF INSTITUTIONS
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NCERC

Certificate OF COMPLETION

.....KENES CHRIS (NCE15MC033).....had successfully completed the Certified course "MACHINE KINEMATICS" during 2017-18 conducted by the Department of Mechatronics Engineering, Nehru College of Engineering and Research Centre, Pampady, Thrissur.

PROGRAM CO-ORDINATOR

HEAD OF DEPARTMENT

PRINCIPAL
Nehru College of
Engineering and Research Centre
Pampady, Thiruvilwamala, Thrissur Dt

NEHRU COLLEGE OF ENGINEERING & RESEARCH CENTRE
PAMPADY
THIRUVILWAMALA
THRISSUR DT.

NEHRU GROUP OF INSTITUTIONS
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NCERC

Certificate OF COMPLETION

.....SREEJITH S (NCE15MC054).....had successfully completed the Certified course "MACHINE KINEMATICS" during 2017-18 conducted by the Department of Mechatronics Engineering, Nehru College of Engineering and Research Centre, Pampady, Thrissur.

NEHRU COLLEGE OF ENGINEERING & RESEARCH CENTRE
PAMPADY
THIRUVILWAMALA,
THRISSUR DT.

PROGRAM CO-ORDINATOR

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Pin 680 597 Kerala



NEHRU COLLEGE OF ENGINEERING AND RESEARCH CENTRE
(NAAC Accredited)
(Approved by AICTE, Affiliated to APJ Abdul Kalam Technological University, Kerala)



MBA

NEHRU COLLEGE OF ENGINEERING AND RESEARCH CENTRE

NEHRU SCHOOL OF MANAGEMENT

NILA GARDENS, PAMPADY

NSM/Academic/16-18/17 22/09/2017

CIRCULAR

This is to inform all the students of 2016-18 batch that a certificate program on Diploma in logistics management will be conducted at Kapila from October 2017 to March 2018.

Attendance is compulsory for all who have registered.

Batch Tutor,

Nehru School of Management

Director,

Nehru School of Management

PRINCIPAL
Nehru College of
Engineering and Research Centre
Pampady Thiruvilwamala, Thrissur Dt
Pin 680 597 Kerala

CC:
The Principal, NCERC
Campus Manager, NCERC
Academic Office, NCERC

NEHRU COLLEGE OF ENGINEERING & RESEARCH CENTRE
PAMPADY
THIRUVILWAMALA
THRISSUR DT

NEHRU COLLEGE OF ENGINEERING AND RESEARCH CENTRE

NEHRU SCHOOL OF MANAGEMENT

NILA GARDENS, PAMPADY

NSM/Academic/2017-18 30/05/2017

Academic Council Meeting

Minutes

Point Discussed	Action taken	Responsibility
Improvement of academics	To send Faculties to more FDPs	Ms. Chandrakala
KTU Audit	• KTU auditing will be there. • All the documents to be filed. • The faculty has to submit the photocopies of all certificate	Mr. Alex Ms. Suma
Admission Work	To be done as per need	Dr. Raj
Certificate Program	To organize a certificate program on Logistics for 2016-18 Batch	Director Mr. Alex

Members

Director NSM:

Dr. KVS Raj

Ms. Chandrakala:

Academic Coordinator

Nehru School of Management

Director,

Nehru School of Management

CC:
The Principal, NCERC
Campus Manager, NCERC
Academic Office, NCERC

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Pin 680 597 Kerala

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Pampady Thiruvilwamala, Thrissur Dt
Pin 680 597 Kerala

NEHRU COLLEGE OF ENGINEERING AND RESEARCH CENTRE

NEHRU SCHOOL OF MANAGEMENT

NILA GARDENS, PAMPADY

NSM/Academic/2017 12/05/2017

To,

The Principal,

NCERC, Pampady

Dear Madam,

Sub: **Request to conduct MBA Academic Council meeting**

We are planning to organize the academic council meeting on 30th May 2017 to discuss all academic related issues and certificate programs to be organized by MBA department in the current year.

Kindly approve

Director,

Nehru School of Management

PRINCIPAL
Nehru College of
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Pampady Thiruvilwamala Thrissur Dt
Pin 680 597 Kerala

NEHRU COLLEGE OF ENGINEERING & RESEARCH CENTRE
PAMPADY
THIRUVILWAMALA
THRISSUR DT

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THIRUVILWAMALA
THRISSUR DT

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Pin 680 597 Kerala

NEHRU COLLEGE OF ENGINEERING AND RESEARCH CENTRE

NEHRU SCHOOL OF MANAGEMENT

NILA GARDENS, PAMPADY

NSM/Academic/2017 12/09/2017

To,

The Principal,

NCERC, Pampady

Dear Madam,

Sub: **Request to conduct Certificate course: Diploma in Logistics**

As per the Academic council meeting held on 30/05/2017 kindly note MBA department has decided to conduct a certificate program for the 2016-18 batch from October 2017 till March 2018. The time table is attached for your perusal. The certificate program is a diploma in logistics.

Kindly approve

Director,

Nehru School of Management

PRINCIPAL
Nehru College of
Engineering and Research Cent
Pampady Thiruvilwamala Thrissur
Pin 680 597 Kerala

Permitted

PRINCIPAL
Nehru College of
Engineering and Research Cen
Pampady Thiruvilwamala Thrissur
Pin 680 597 Kerala

Nila Gardens, Pampady
Time Table 2016 – 2018 Batch
Certificate Program: Diploma in logistics

Day	Time/subject
	4.00 PM to 5 PM
MONDAY	Shipping
TUESDAY	Air Cargo
WEDNESDAY	Shipping
THURSDAY	Air Cargo
FRIDAY	SCM

Bartch Tutor

Nehru School of Management

Director

Nehru School of Management

PRINCIPAL
Nehru College of
Engineering and Research Centre
Pampady Thiruvilwamala, Thrissur Dt
Pin 680 597 Kerala

NEHRU COLLEGE OF ENGINEERING & RESEARCH CENTRE
PAMPADY
THIRUVILWAMALA
THRISSUR DT

Nehru School of Management @ NCERC
Monthly Attendance

Batch	2016-18
Subject	Diploma in Logistics
Month	Oct 2017

SL. No	Student ID	Name	Days																												
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
1	NCE16MBA01	AFEEFATHUNNISHA	S							S	/	/	/	/	/	S	S	/	/	/	/	/	/	S	/	/	/	/	/	L	S	/	/
2	NCE16MBA02	AJITH KUMAR P									/	/	/	/	/			/	/	/	/	/	/		/	/	/	/	/			/	/
3	NCE16MBA03	ALEENA ROSE									/	/	/	/	/			/	/	/	/	/	/		/	/	/	/	/			/	/
4	NCE16MBA04	ANJALI RAJESH									/	/	/	/	/			/	/	/	/	/	/		/	/	/	/	/			/	/
5	NCE16MBA05	APARNA C									/	/	/	/	/			/	/	/	/	/	/		/	/	/	/	/			/	/
6	NCE16MBA06	ARATHI U									/	/	/	/	/			a	a	/	/	/	/		/	/	/	/	/			/	/
7	NCE16MBA07	ASHISH									/	/	/	/	/			/	/	/	/	/	/		/	/	/	/	/			/	/
8	NCE16MBA08	ATHIRA M NAIR									/	/	/	/	/			/	/	/	/	/	/		/	/	/	/	/			/	/
9	NCE16MBA09	ATHIRA V K																															
10	NCE16MBA10	BIBIN N B									/	a	/	/	/			/	/	/	/	/	/		/	/	/	/	/			/	/
11	NCE16MBA11	BINU SREE N V									/	/	/	/	/			/	/	/	/	/	/		/	/	/	/	/			/	/
12	NCE16MBA12	DEEPAK DENNY									a	/	/	/	/			/	/	/	/	/	a		/	/	/	/	/			/	/
13	NCE16MBA13	DEVIPRASAD K K									/	/	/	/	/			/	/	/	/	/	/		/	/	/	/	/			/	/
14	NCE16MBA14	DHANUSH N									/	/	/	/	/			/	/	a	/	/	/		/	a	/	/	/			/	/
15	NCE16MBA15	DHRISYA S																															
16	NCE16MBA16	DIVYA PRATHAPAN									/	/	a	/	/			/	/	/	/	/	/		/	/	a	/	/			/	/
17	NCE16MBA17	GIRIPRABHU H									/	/	/	/	/			/	/	/	/	/	/		/	/	/	/	/			/	/
18	NCE16MBA18	HARITHA A H									/	a	/	/	/			/	/	/	/	/	/		/	/	/	/	/			/	/
19	NCE16MBA19	HIMESH N									/	/	/	/	/			a	/	/	/	/	/		/	/	a	/	/			/	/
20	NCE16MBA20	HIRANDAS P									/	/	/	/	/			/	/	/	/	/	/		/	/	/	/	/			/	/
21	NCE16MBA21	JAYASREE T M									a	/	/	/	/			/	/	/	/	/	/		/	/	/	/	/			/	/
22	NCE16MBA22	JENY T VINOD									/	/	/	/	/			/	/	a	/	/	/		/	/	/	/	/			/	/
23	NCE16MBA23	JITHIN RAJ K T									/	/	/	/	/			/	/	/	/	/	/		/	/	/	/	/			/	/
24	NCE16MBA24	KASHMEERA P									/	/	/	/	/			/	/	/	/	/	/		/	/	/	/	/			/	/
25	NCE16MBA25	KEERTHANA R									/	/	/	/	/			/	/	/	/	/	/		/	/	/	/	/				
26	NCE16MBA26	KRISHNADAS K P																															
27	NCE16MBA27	KRISHNAKUMAR V																															

PRINCIPAL
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Pin 680 597 Kerala

28	NCE16MBA28	KRISHNAPRASAD K B	
29	NCE16MBA29	KRISHNAPRIYA M	
30	NCE16MBA30	LINI P	
31	NCE16MBA31	MARY MEEKHUL	
32	NCE16MBA33	MIMNA REVI	
33	NCE16MBA34	MINHAJUDHEEN M M	
34	NCE16MBA36	MRUDULA M	
35	NCE16MBA39	NAIR VARSHA	
36	NCE16MBA40	NEELAKANDHAN P P	
37	NCE16MBA41	NIKHIL P S	
38	NCE16MBA42	NINA M R	
39	NCE16MBA43	NINDHU A	
40	NCE16MBA45	NITHU PRAKASH	
41	NCE16MBA46	P ANIL	
42	NCE16MBA47	P R YUDHI	
43	NCE16MBA48	RANJITHA	
44	NCE16MBA49	RANJITH P P	
45	NCE16MBA51	RASHMI C S	
46	NCE16MBA52	RAVITHA MENON	
47	NCE16MBA53	RICHARDSON P I	
48	NCE16MBA54	ROSHNI	
49	NCE16MBA56	SANJAY V S	
50	NCE16MBA57	SARANYA E	
51	NCE16MBA59	SHAMEEM	
52	NCE16MBA60	SHAMMY	
53	NCE16MBA61	SREELATHA K S	
54	NCE16MBA62	SREERAG R	
55	NCE16MBA63	SRUTHI P	
56	NCE16MBA64	SURAG K S	
57	NCE16MBA65	VARSHA K V	
58	NCE16MBA66	VISHNU P S	
59	NCE16MBA67	V KRISHNAPRABHA	
60	NCE16MBA68	VYSHAGH P	

Batch Tutor

PRINCIPAL
Nehru College of
Engineering and Research Cen
Pampady, Thiruvilwamala, Thrissur D
Pin 680 597 Kerala

Nehru School of Management @ NCERC
Monthly Attendance

Batch	2016-18
Subject	Diploma in Logistics
Month	NOV. 2017

SL. No	Student ID	Name	Days																												
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
1	NCE16MBA01	AFEEFATHUNNISHA		/	/		S	/	/	/	/	/	H	S	/	/	/	/	/		S	/	/	/	/	/	H	S	/	/	/	/	
2	NCE16MBA02	AJITH KUMAR P		/	/			/	/	/	/	/			/	/	/	/	/			/	/	/	/	/			/	/	/	/	/
3	NCE16MBA03	ALEENA ROSE		/	/			/	/	/	/	/			/	/	/	/	/			/	/	/	/	/			/	/	/	/	/
4	NCE16MBA04	ANJALI RAJESH		/	/			/	a	a	/	/			/	/	/	/	/			/	/	/	/	/			/	/	/	/	/
5	NCE16MBA05	APARNA C		/	/			/	/	/	/	/			/	/	/	/	/			/	/	/	/	/			/	/	/	/	/
6	NCE16MBA06	ARATHI U		/	/			/	a	/	/	/			/	/	/	a	a			/	/	/	/	/			/	/	/	/	/
7	NCE16MBA07	ASHISH		/	/			/	/	/	/	/			/	/	/	/	/			/	/	/	/	/			/	/	/	/	/
8	NCE16MBA08	ATHIRA M NAIR		/	/			/	/	/	/	/			a	/	/	/	/			/	/	/	/	/			/	/	/	/	/
9	NCE16MBA09	ATHIRA V K																															
10	NCE16MBA10	BIBIN N B		/	/			/	/	/	/	/			/	/	/	/	/			/	/	/	/	/			/	/	/	/	/
11	NCE16MBA11	BINU SREE N V		/	/			/	/	/	/	/			/	/	/	a	/			/	/	/	/	/			/	/	/	/	/
12	NCE16MBA12	DEEPAK DENNY		/	/			a	/	/	/	a			/	/	/	/	/			/	/	/	/	/			/	/	/	/	/
13	NCE16MBA13	DEVIPRASAD K K		/	/			/	/	/	/	/			/	/	a	/	/			/	a	/	/	/			a	/	/	/	/
14	NCE16MBA14	DHANUSH N		/	/			/	a	/	/	/			/	/	/	/	/			/	/	/	/	/			/	/	/	/	/
15	NCE16MBA15	DHRISYA S																															
16	NCE16MBA16	DIVYA PRATHAPAN		/	/			/	/	/	/	/			/	/	/	/	/			/	/	/	/	/			a	/	/	/	/
17	NCE16MBA17	GIRIPRABHU H		/	a			/	/	/	/	/			/	/	/	/	/			/	/	/	/	/			/	/	/	/	/
18	NCE16MBA18	HARITHA A H		/	a			/	/	/	/	/			/	/	/	/	/			/	/	/	/	/			/		/	/	/
19	NCE16MBA19	HIMESH N		/	/			/	/	/	/	/			/	/	/	/	/			/	/	/	/	/			/	a	/	/	
20	NCE16MBA20	HIRANDAS P		/	/			/	/	/	/	/			/	/	/	/	/			/	/	a	/	/			/	/	/	/	/
21	NCE16MBA21	JAYASREE T M		/	/			/	/	/	/	/			/	/	/	/	/			/	/	/	/	/			/	/	/	/	/
22	NCE16MBA22	JENY T VINOD		/	/			/	/	/	a	/			/	/	/	/	/			/	/	/	/	/			/	/	/	/	/
23	NCE16MBA23	JITHIN RAJ K T		/	/			/	/	/	/	/			/	/	/	/	/			/	/	/	/	/			a	/	/	/	/
24	NCE16MBA24	KASHMEERA P		/	/			/	/	/	/	/			/	/	/	/	/			/	a	/	/	/			/	/	/	/	/
25	NCE16MBA25	KEERTHANA R		/	/			/	/	/	/	/			/	/	/	/	/			/	/	a	a	/			/	/	/	/	/
26	NCE16MBA26	KRISHNADAS K P																															
27	NCE16MBA27	KRISHNAKUMAR V																															

PRINCIPAL
Nehru College of
Engineering and Research Cen
Pampady, Thiruvilwamala, Thrissur
Pin 680 597 Kerala

| | | |

Nehru School of Management @ NCERC
Monthly Attendance

Batch	2016-18
Subject	Diploma in Logistics
Month	MARCH 2017

SL. No	Student ID	Name	Days 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31
1	NCE16MBA01	AFEEFATHUNNISHA	
2	NCE16MBA02	AJITH KUMAR P	
3	NCE16MBA03	ALEENA ROSE	
4	NCE16MBA04	ANJALI RAJESH	
5	NCE16MBA05	APARNA C	
6	NCE16MBA06	ARATHI U	
7	NCE16MBA07	ASHISH	
8	NCE16MBA08	ATHIRA M NAIR	
9	NCE16MBA09	ATHIRA V K	
10	NCE16MBA10	BIBIN N B	
11	NCE16MBA11	BINU SREE N V	
12	NCE16MBA12	DEEPAK DENNY	
13	NCE16MBA13	DEVIPRASAD K K	
14	NCE16MBA14	DHANUSH N	
15	NCE16MBA15	DHRISYA S	
16	NCE16MBA16	DIVYA PRATHAPAN	
17	NCE16MBA17	GIRIPRABHU H	
18	NCE16MBA18	HARITHA A H	
19	NCE16MBA19	HIMESH N	
20	NCE16MBA20	HIRANDAS P	
21	NCE16MBA21	JAYASREE T M	
22	NCE16MBA22	JENY T VINOD	
23	NCE16MBA23	JITHIN RAJ K T	
24	NCE16MBA24	KASHMEERA P	
25	NCE16MBA25	KEERTHANA R	
26	NCE16MBA26	KRISHNADAS K P	
27	NCE16MBA27	KRISHNAKUMAR V	

Batch tutor

PRINCIPAL
Nehru College of
Engineering and Research Centre
Pampady, Thiruvilwamala, Thrissur Dt
PIN 680 597, Kerala

| | | |

Nehru School of Management @ NCERC
Monthly Attendance

Batch	2016-18
Subject	Diploma in Logistics
Month	Feb 2017

SL. No	Student ID	Name	Days																												
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
1	NCE16MBA01	AFEEFATHUNNISHA					/	/	/																							
2	NCE16MBA02	AJITH KUMAR P					/	/	/																							
3	NCE16MBA03	ALEENA ROSE					/	/	/																							
4	NCE16MBA04	ANJALI RAJESH					/	/	/																							
5	NCE16MBA05	APARNA C					/	a	a																							
6	NCE16MBA06	ARATHI U					/	/	a																							
7	NCE16MBA07	ASHISH					/	/	/																							
8	NCE16MBA08	ATHIRA M NAIR					/	/	/																							
9	NCE16MBA09	ATHIRA V K	—	—	—	—	—	—	—	—	—	—																				
10	NCE16MBA10	BIBIN N B					/	/	/																							
11	NCE16MBA11	BINU SREE N V					/	/	/																							
12	NCE16MBA12	DEEPAK DENNY					/	/	/																							
13	NCE16MBA13	DEVIPRASAD K K					/	/	/																							
14	NCE16MBA14	DHANUSH N					/	/	/																							
15	NCE16MBA15	DHRISYA S	—	—	—	—	—	—	—	—	—	—	—																			
16	NCE16MBA16	DIVYA PRATHAPAN					/	/	/																							
17	NCE16MBA17	GIRIPRABHU H					a	a	/																							
18	NCE16MBA18	HARITHA A H					/	/	/																							
19	NCE16MBA19	HIMESH N					a	/	/																							
20	NCE16MBA20	HIRANDAS P					/	/	/																							
21	NCE16MBA21	JAYASREE T M					/	/	/																							
22	NCE16MBA22	JENY T VINOD					/	/	/																							
23	NCE16MBA23	JITHIN RAJ K T					/	/	/																							
24	NCE16MBA24	KASHMEERA P					/	/	/																							
25	NCE16MBA25	KEERTHANA R					/	/	/																							
26	NCE16MBA26	KRISHNADAS K P	—	—	—	—	—	—	—	—	—	—	—																			
27	NCE16MBA27	KRISHNAKUMAR V	—	—	—	—	—	—	—	—	—	—	—																			

Batch Tutor

PRINCIPAL
Nehru College of
Engineering and Research Centre
Pampady Thiruvilwamala, Thrissur Dt
Pin 680 597 Kerala

| | | |

Nehru School of Management @ NCERC
Monthly Attendance

Batch	2016-18
Subject	Diploma in Logistics
Month	Jan. 2018

SL. No	Student ID	Name	Days																												
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
1	NCE16MBA01	AFEEFATHUNNISHA							S	P	P	P	P	P	H	S	P	P	P	P	P		S	P	P	P	P	P		S			
2	NCE16MBA02	AJITH KUMAR P								P	P	P	P	P			P	P	P	P	P			P	P	P	P	P					
3	NCE16MBA03	ALEENA ROSE								P	P	P	P	P			P	A	P	P	P			P	P	P	P	P					
4	NCE16MBA04	ANJALI RAJESH								P	P	P	P	P			P	A	P	P	P			P	P	P	P	P					
5	NCE16MBA05	APARNA C								P	P	P	P	P			P	P	P	P	P			P	P	P	P	P					
6	NCE16MBA06	ARATHI U								P	P	P	P	P			P	P	P	P	P			P	P	P	P	P					
7	NCE16MBA07	ASHISH								P	P	P	P	P			P	P	P	P	A			P	P	P	P	P					
8	NCE16MBA08	ATHIRA M NAIR								P		P	P	P			P	P	P	P	A			P	P	P	P	P					
9	NCE16MBA09	ATHIRA V K															P																
10	NCE16MBA10	BIBIN N B								P	P	P	P	P			P	P	P	P	P			P	P	P	P	P					
11	NCE16MBA11	BINU SREE N V								P	A	P	P	P			P	P	P	P	P			P	P	P	P	P					
12	NCE16MBA12	DEEPAK DENNY								P	A	A	P	P			P	P	P	P	P			P	P	P	P	P					
13	NCE16MBA13	DEVIPRASAD K K								P	P	P	P	P			P	P	P	P	P			P	P	P	P	P					
14	NCE16MBA14	DHANUSH N								P	P	P	P	P			P	P	P	P	P			P	P	P	P	P					
15	NCE16MBA15	DHRISYA S																															
16	NCE16MBA16	DIVYA PRATHAPAN								P	P	A	P	P			P	P	P	P	P			P	P	P	P	P					
17	NCE16MBA17	GIRIPRABHU H								P	P	P	P	P			P	P	P	P	P			P	A	P	P	P					
18	NCE16MBA18	HARITHA A H								P	A	P	P	P			P	P	P	P	P			P	P	P	P	P					
19	NCE16MBA19	HIMESH N								H	P	P	A	P			P	P	P	P	P			A	P	P	P	P					
20	NCE16MBA20	HIRANDAS P								P	P	P	P	P			P	P	P	P	P			P	P	P	P	P					
21	NCE16MBA21	JAYASREE T M								P	P	P	P	P			P	P	P	P	P			P	P	P	P	P					
22	NCE16MBA22	JENY T VINOD								P	P	P	P	P			P	P	A	A	P			P	P	P	P	P					
23	NCE16MBA23	JITHIN RAJ K T								P	P	P	P	P			P	P	P	P	P			P	P	A	P	P					
24	NCE16MBA24	KASHMEERA P								P	P	P	P	P			P	P	P	P	P			P	P	P	P	P					
25	NCE16MBA25	KEERTHANA R								P	P	P	P	P			P	P	P	P	P			P	P	P	P	L					
26	NCE16MBA26	KRISHNADAS K P																															
27	NCE16MBA27	KRISHNAKUMAR V																															

Batch tutor

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28	NCE16MBA28	KRISHNAPRASAD K B
29	NCE16MBA29	KRISHNAPRIYA M
30	NCE16MBA30	LINI P
31	NCE16MBA31	MARY MEEKHUL
32	NCE16MBA33	MIMNA REVI
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34	NCE16MBA36	MRUDULA M
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38	NCE16MBA42	NINA M R
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42	NCE16MBA47	P R YUDHI
43	NCE16MBA48	RANJITHA
44	NCE16MBA49	RANJITH P P
45	NCE16MBA51	RASHMI C S
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50	NCE16MBA57	SARANYA E
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52	NCE16MBA60	SHAMMY
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54	NCE16MBA62	SREERAG R
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59	NCE16MBA67	V KRISHNAPRABHA
60	NCE16MBA68	VYSHAGH P

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Pin 680 597 Kerala

Nehru School of Management @ NCERC
Monthly Attendance

Batch	2016-18
Subject	Diploma in Logistics
Month	Dec. 2017

Sl. No	Student ID	Name	Days																												
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
1	NCE16MBA01	AFEEFATHUNNISHA	/		S	/	/	/	/	/	S	S	a	a	/	/	/		S														
2	NCE16MBA02	AJITH KUMAR P	/			/	/	/	/	/			/	/	/	/	/																
3	NCE16MBA03	ALEENA ROSE	/			/	/	/	/	/			/	/	/	/	a																
4	NCE16MBA04	ANJALI RAJESH	/			/	/	/	/	/			/	/	/	/	/																
5	NCE16MBA05	APARNA C	/			/	/	/	/	/			/	/	/	/	/																
6	NCE16MBA06	ARATHI U	/			/	/	/	/	/			/	/	/	/	/																
7	NCE16MBA07	ASHISH	/			/	/	/	/	/			/	/	/	/	/																
8	NCE16MBA08	ATHIRA M NAIR	/			/	/	/	/	/			/	/	/	/	/																
9	NCE16MBA09	ATHIRA V K	—																														
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Batch Tutor

PRINCIPAL
Nehru College of
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Pampady Thiruvilwamala Thrissu
Pin 680 597 Kera

Diploma in Logistics

Name:

Roll Number:

Tick the right answers (each answer carries 4 marks and negative 2 for wrong answer)

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2. According to the manufacturing-based definition of quality
   a. A quality is the degree of excellence at an acceptable price and the control of variability at an acceptable cost
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   c. even though quality cannot be defined, you know what it is
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3. The supply chain concept originated in what discipline?
   a. marketing
   b. operations
   c. logistics
   d. production
4. Zero defects in manufacturing is
   a. is a relevant goal only in electronic assembly
   b. is readily achievable in all areas
   c. is the goal of TQM
   d. is an unobtainable and misleading idea
5. The supply chain management philosophy emerged in which decade?
   a. 1960s
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6. A _____ encompasses all activities associated with the flow and transformation of goods from the raw material stage, through to the end user, as well as the associated information flows.
   a. production line
   b. supply chain
   c. marketing channel
   d. warehouse

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THRISSUR DT

7. Which one of the following is not a typical question dealt with by an operations managers?
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10. Which one of the following best represents a pure good?
   a. Soap
   b. Fast food
   c. Attending a play
   d. Vehicle repair
11. Which of the following statements is true of LEAN?
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   b. Lean principles are separate body of knowledge
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14. Cooperative supply chain relationships developed to enhance the overall business performance of both parties is a definition of:
   a. third-party logistics
   b. supply chain collaboration

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Pin 680 597 Kerala

c. dovetailing
d. relationship marketing

15. Process improvement technique that sorts the "vital few" from the "trivial many" is
    a. Taguchi analysis
    b. Pareto analysis
    c. benchmarking
    d. Yamaguchi analysis
16. A fishbone diagram is also known as
    a. a cause-and-effect diagram
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17. Which of the following functions is not a core function of an organisation?
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18. What is a perfect order?
    a. simultaneous achievement of relevant customer metrics
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19. Total Quality Management emphasizes
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    a. prevention costs
    b. appraisal costs
    c. internal failures
    d. none of the above, they are all major categories of costs associated with quality

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22. Inspection, scrap, and repair are examples of
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25. A successful TQM program incorporates all of the following except
    a. continuous improvement
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    c. benchmarking
    d. centralized decision making authority

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THIRUVILWAMALA
THRISSUR DT.

70/100

Diploma in Logistics

Name: Athira. M. Nair

Roll Number: NCE16MBA08

Tick the right answers (each answer carries 4 marks and negative 2 for wrong answer)

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THRISSUR DT.

55
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Diploma in Logistics

Name: NCE16MBA16 - Divya

Roll Number: Divya NCE16MBA16

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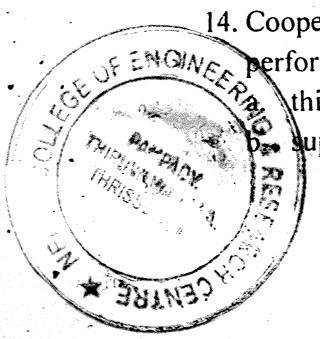
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20. "Quality is defined by the customer" is
    a. an unrealistic definition of quality
    b. a user-based definition of quality
    c. a manufacturing-based definition of quality
    d. a product-based definition of quality
21. Which of the following is not one of the major categories of costs associated with quality?
    a. prevention costs
    b. appraisal costs
    c. internal failures
    d. none of the above, they are all major categories of costs associated with quality

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22. Inspection, scrap, and repair are examples of
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60/100

Diploma in Logistics

Name: NCE16MBA22 - JENY

Roll Number:

Tick the right answers (each answer carries 4 marks and negative 2 for wrong answer)

1. "Quality is defined by the customer" is :
   a. An unrealistic definition of quality
   b. A user-based definition of quality
   c. A manufacturing-based definition of quality ✓
   d. d A product-based definition of quality
2. According to the manufacturing-based definition of quality
   a. A quality is the degree of excellence at an acceptable price and the control of variability at an acceptable cost ✓
   b. quality depends on how well the product fits patterns of consumer preferences
   c. even though quality cannot be defined, you know what it is
   d. quality is the degree to which a specific product conforms to standards
3. The supply chain concept originated in what discipline?
   a. marketing
   b. operations ✓
   c. logistics
   d. production
4. Zero defects in manufacturing is
   a. is a relevant goal only in electronic assembly
   b. is readily achievable in all areas
   c. is the goal of TQM ✓
   d. is an unobtainable and misleading idea
5. The supply chain management philosophy emerged in which decade?
   a. 1960s
   b. 1970"s
   c. 1980s
   d. 1990s ✓
6. A _____ encompasses all activities associated with the flow and transformation of goods from the raw material stage, through to the end user, as well as the associated information flows.
   a. production line
   b. supply chain ✓
   c. marketing channel
   d. warehouse

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7. Which one of the following is not a typical question dealt with by an operations managers?
   a. How much capacity will be needed in the months ahead?
   b. What is a satisfactory location for a new facility?
   c. How to motivate employees?
   d. All are typical of operations decisions.
8. Which of the following are not key attributes of supply chain management?
   A. inventory control
   B. leveraging technology
   C. customer power
   D. all are key attributes
9. Positive, long-term relationships between supply chain participants refer to:
   a. Co-operations
   b. tailored logistics
   c. partnerships
   d. supply chain management
10. Which one of the following best represents a pure good?
   a. Soap
   b. Fast food
   c. Attending a play
   d. Vehicle repair
11. Which of the following statements is true of LEAN?
   a. Lean principles focus on advanced statistical methods
   b. Lean principles are separate body of knowledge
   c. Lean principles have been developed over a lengthy period of time.
   d. Lean principles include reducing waste.
12. The bullwhip effect:
   a. is an ineffective way to motivate warehouse employees
   b. applies to rodeos and has nothing to do with supply chain management
   c. refers to the "swaying" motion associated with triple trailers
   d. Refers to variability in demand orders among supply chain participants.
13. The variability in demand orders among supply chain participants:
   a. cannot be controlled
   b. refers to the bullwhip effect
   c. can be controlled with electronic order placement
   d. is more pronounced in relational exchanges
14. Cooperative supply chain relationships developed to enhance the overall business performance of both parties is a definition of:
   a. third-party logistics
   b. supply chain collaboration

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Registration No : KLM TC 969 2012, Government of Kerala.
ISO 9001:2008 CERTIFIED ORGANIZATION

Register No : 1710885 *Serial No :885/2017*

The following marks were awarded to Shri/Smt SREERAG.R. at the Examination in DIPLOMA IN LOGISTICS AND SUPPLY CHAIN MANAGEMENT course.

SUBJECTS	Marks Awarded	
	Max.Mark	Marks Obtained
SHIPPING DOCUMENTATION	100	60
AIRCARGO	100	80
LOGISTICS AND SUPPLY CHAIN MANAGEMENT	100	70
GRAND TOTAL	300	210

Prepared By :

Date : 28/04/2018

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Register No : 1710875 ***Serial No :875/2017***

The following marks were awarded to Shri/Smt .JAYASREE.T.M at the Examination in DIPLOMA IN LOGISTICS AND SUPPLY CHAIN MANAGEMENT course.

SUBJECTS	Marks Awarded	
	Max.Mark	Marks Obtained.
SHIPPING DOCUMENTATION	100	60
AIRCARGO	100	65
LOGISTICS AND SUPPLY CHAIN MANAGEMENT	100	60
GRAND TOTAL	300	185

Prepared By :

Date : 28/04/2018

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Register No : 1710902 ***Serial No :902/2017***

The following marks were awarded to Shri/Smt . NEELAKANDHAN.P.P. at the Examination in DIPLOMA IN LOGISTICS AND SUPPLY CHAIN MANAGEMENT course.

SUBJECTS	Marks Awarded	
	Max.Mark	Marks Obtained
SHIPPING DOCUMENTATION	100	65
AIRCARGO	100	65
LOGISTICS AND SUPPLY CHAIN MANAGEMENT	100	60
GRAND TOTAL	300	190

Prepared By :

Date : 28/04/2018

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Register No: 1710875

Serial No: 875/2017

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Register No: 1710902 *Serial No:* 902/2017

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Register No: 1710885

Serial No: 885/2017

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Master of Computer Applications

Nehru College Of Engineering & Research Centre, Pampady

Department of MCA

Circular

This is to inform you that the Department of MCA is conducting value added course on Android & Java Programming from 03/07/17 to 14/07/17. Attendance is compulsory.

Pampady

29/06/17

HOD MCA

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NEHRU COLLEGE OF ENGINEERING AND RESEARCH CENTRE

DEPARTMENT OF MCA

To

The Principal, NCERC

Madam,

Sub: Request for conduct of Value Added Courses for MCA students

As in previous years, we have planned to conduct the Value added program for our students tentatively on July 2017

The topic selected for this program is Android and Java Programming

Once approved we shall plan out the execution of program.

Thank you

15/06/17

HOD-MCA

Approved

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Pampady, Thiruvilwamala, Thrissur Dt
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Minutes of Meeting conducted on 29/06/2017

1. Principal's approval dt. 03rd – 14th July 2017 for Value Added courses
2. Topic of VA Course is fixed as Android and Java Programming
3. The syllabus may cover Basics of android , java and their applications
4. Class tutors must motivate the students to take the course seriously
5. Evaluation may be done through Quiz, Written Exams and Group activities
6. Certificates for successful students may be provided

Coordinator – VA Courses-MCA

Faculty Attendees

Dr.Sudheer.S.Marar

Pramod K

Ashish L

NEHRU COLLEGE OF ENGINEERING AND RESEARCH CENTRE M.C.A. PAMPADY

Student Attendees

Jibin

Athira

Shyam

Reshma

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SYLLABUS OF ANDROID AND JAVA PROGRAMMING

Fundamentals: Basic Building blocks – Activities, Services, Broadcast Receivers and Content providers, UI Components - Views and notifications Components for communication -Intents and Intent Filters

Application Structure:- AndroidManifest.xml , user-permission - sdk , Resources and R.java , Assets, Layouts and Drawable Resources, Activities and Activity lifecycle.

Emulator-Android Virtual Device:- Launching emulator, Editing emulator settings, Emulator shortcuts, Logcat usage, Introduction to DDMS

Basic UI design:- Form widgets , Text Fields , Layouts , [dip, dp, sip, sp] versus px

Preferences:- Shared Preferences, Preferences from xml

Menu : Option menu , Context menu, menu from xml, menu via code

Intents : Explicit Intents, Implicit intents

UI design: Time and Date, Images and media , Composite , Alert Dialogs and Toast, Popup

Tabs and Tab Activity

Styles and Themes: styles.xml , drawable resources for shapes, gradients (selectors) , style attribute in layout file, Applying themes via code and manifest file

Content Providers: SQLite Programming , SQLite Open Helper, SQLite Database, Cursor, Reading and updating Contacts, Reading bookmarks

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MCA DEPARTMENT 2017 – 2018

SCHEDULE ANDROID AND JAVA PROGRAMMING 03rd – 14th July 2017

No	Date	Portions Covered
1	3	Fundamentals:
2	4	Application Structure
3	5	Emulator-Android Virtual Device
4	6	Basic UI design
5	7	Preferences
6	10	Menu
7	11	Intents
8	12	UI design
9	13	Tabs and Tab Activity
10	14	Content Providers

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MCA DEPARTMENT 2017 – 2018

NAME LIST OF STUDENTS

3rd – 14th July 2017

NO.	NAME
1	AISWARYA C
2	AISWARYA M A
3	AISWARYA RAJENDRAN V
4	AMUDA K
5	ATHIRA K
6	HARITHA K S
7	JIJIN P
8	KARISHMA K
9	M SUKANYA
10	MEERA N
11	MEHAZA NAJEEB
12	MOHAMED MUSTHAFA P
13	MOUNIKA V
14	RESHMA M
15	RESHMI R
16	SHIVIN WILSON N
17	SHYAM M S
18	SILNA K WILSON
19	SIRIL M R
20	SREELAKSHMI C
21	SREENATH M P
22	SRUTHY M
23	STEPHY SEBASTIAN
24	SUMILA S
25	THANSIHA NASRIN A
26	VINDHUJA V
27	VINI C V
28	AISWARYA K R
29	AJESH A J
30	ASHA JOHNY
31	ASHITHA B Y

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32	ATHIRA O M
33	BINDHU BALACHANDRAN
34	DEVI KRISHNA P R
35	DIPIN K S
36	DIVYA K
37	FAYIS K T
38	JAYASREE P
39	JIBIN VARGHESE
40	MOHAMMED RAOFAL
41	NAMITHA P S
42	NANCY KOCHOUSEPH
43	NEELIMA M P
44	NIDHILA K
45	PRESSY MATHEW
46	RAIBY M BENNY
47	SHAMILA M I
48	SHOBIKA KAILAS S
49	SNEHA MOHAN P
50	SREEJITH K
51	SUBAIR A S
52	SUMI M

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ATTENDANCE TEAM A

3rd – 14th July 2017

NO.	NAME	3	4	5	6	7	10	11	12	13	14
1	AISWARYA C	/	/	/	/	/	/	/	/	/	/
2	AISWARYA M A	/	/	/	/	/	/	/	/	/	/
3	AISWARYA RAJENDRAN V	/	/	/	a	/	/	/	/	/	/
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5	ATHIRA K	/	a	/		/	/	/	/	/	/
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7	JIJIN P	/	/	/	/	/	/	/	/	/	/
8	KARISHMA K	/	/	/	/	/	/	/	/	/	/
9	M SUKANYA	/	/	/	/	/	/	/	/	/	/
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11	MEHAZA NAJEEB	/	/	/	/	/	/	/	/	/	/
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13	MOUNIKA V	/	/	/	/	/	/	/	/	/	/
14	RESHMA M	/	/	/	/	/	/	/	/	/	/
15	RESHMI R	/	/	/	/	/	/	/	/	/	/
16	SHIVIN WILSON N	/	/	a	/	/	/	/	/	/	/
17	SHYAM M S	/	/	a	/	/	/	/	/	/	/
18	SILNA K WILSON	/	/	/	/	/	/	/	/	/	/
19	SIRIL M R	/	/	/	/	/	/	/	/	/	/
20	SREELAKSHMI C	/	/	/	/	/	/	/	/	/	/
21	SREENATH M P	/	/	/	/	/	/	/	/	/	/
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23	STEPHY SEBASTIAN	/	/	/	/	/	/	/	/	/	/
24	SUMILA S	/	/	/	/	/	/	/	/	/	/
25	THANSIHA NASRIN A	/	/	/	/	/	/	/	/	/	/
26	VINDHUJA V	/	/	/	/	/	/	/	/	/	/
27	VINI C V	/	/	/	/	/	/	/	/	/	/

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ATTENDANCE TEAM B

3rd – 14th July 2017

NO.	NAME	3	4	5	6	7	10	11	12	13	14
1	AISWARYA K R	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
2	AJESH A J	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
3	ASHA JOHNY	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
4	ASHITHA B Y	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
5	ATHIRA O M	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
6	BINDHU BALACHANDRAN	✓	✓	✓	✓	✓	✓	✓	✓	✓	
7	DEVI KRISHNA P R	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
8	DIPIN K S	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
9	DIVYA K	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
10	FAYIS K T	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
11	JAYASREE P	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
12	JIBIN VARGHESE	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
13	MOHAMMED RAOFAL	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
14	NAMITHA P S	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
15	NANCY KOCHOUSEPH	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
16	NEELIMA M P	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
17	NIDHILA K	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
18	PRESSY MATHEW	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
19	RĀIBY M BENNY	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
20	SHAMILA M I	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
21	SHOBIKA KAILAS S	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
22	SNEHA MOHAN P	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
23	SREEJITH K	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
24	SUBAIR A S	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
25	SUMI M	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

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Android and Java Programming Question Paper

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Apple
Microsoft
Google
Android Inc

2. Android Web Browser Is Based On
Chrome
Open-source Webkit
Safari
Firefox

3. Which Media Format Is Not Supported By Android
MP4
AVI
MIDI
MPEG

4. In Which Directory XML Layout Files Are Stored
/assets
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/res/layout

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Device Driver
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App And Kernel Level Security
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None Of The Above



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Android Asset Processing Tool.
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NodeJs
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Java

15. Action Bar Can Be Associated To
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Both Activities And Fragments
None Of The Above

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Linux
Windows
Mac
Redhat

17. Adb Stands For
Android Debug Bridge.
Android Drive Bridge.
Android Delete Bridge
Android Destroy Bridge.

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18. What is Manifest.xml in android?
It has information about layout in an application
It has all the information about an application
It has the information about activities in an application
None of the above

19. In which technique, we can refresh the dynamic content in android?
Ajax
Java
Android
None of These

20. What is an interface in android?
Interface is a class.
Interface acts as a bridge between class and the outside world.
Interface is a layout file
All of the above

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Android and Java Programming

1) Android is licensed under which open source licensing license?

A. Gnu's GPL

B. Apache/MIT

C. OSS

D. Sourceforge

Ans: B

2) Although most people's first thought when they think of Android is Google, Android is not actually owned by Google. Who owns the Android platform?

A. Oracle Technology

B. Dalvik

C. Open Handset Alliance

D. The above statement is and Android is owned by Google

Ans: C

3) As an Android programmer, what version of Android should you use as your minimum development target?

A. Versions 1.6 or 2.0

B. Versions 1.0 or 1.1

C. Versions 1.2 or 1.3

D. Versions 2.3 or 3.0

Ans: A

4) What was Google's main business motivation for supporting Android?

A. To level the playing field for mobile devices

B. To directly compete with the iPhone

C. To corner the mobile device application market for licensing purposes

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D. To allow them to advertise more

Ans: D

5) What was the first phone released that ran the Android OS?

A. Google gPhone

B. T-Mobile G1

C. Motorola Droid

D. HTC Hero

Ans: B

6) From a phone manufacturer's point of view, what makes Android so great?

A. Aside from some specific drivers, it provides everything to make a phone work

B. It makes the hardware work better

C. It allows them to compete with Apple's iPhone

D. It allows users to create apps, generating revenue for the companies

Ans: A

7) What is a funny fact about the start of Android?

A. It was orginaly going to be called UFO

B. The first version of Android was released without an actual phone on the market

C. Androids main purpose was to unlock your car door when you left the keys inside of it.

D. Was going to be a closed source application to make more money for its company.

Ans: B

8) What year was the Open Handset Alliance announced?

A. 2005

B. 2006

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C. 2007

D. 2008

Ans: C

9) A device with Android installed is needed to develop apps for Android.

A. True

B. False

Ans: B

10) Android tries hard to _____ low-level components, such as the software stack, with interfaces so that vendor-specific code can be managed easily.

A. confound

B. absract

C. modularize

D. compound

Ans: B

11) Google licensed some proprietary apps.

A. True

B. False

Ans: A

12) What part of the Android platform is open source?

A. low-level Linux modules

B. all of these answers #The entire stack is an open source platform

C. native libraries

D. application frame work

E. complete applications

Ans: B

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13) When did Google purchase Android?

A. 2007

B. 2005

C. 2008

D. 2010

Ans: B

14) Android releases since 1.5 have been given nicknames derived how?

A. Adjective and strange animal

B. Food

C. Something that starts w/ 'A' -> Something that starts w/ 'B'...

D. American states

Ans: B

15) Which one is not a nickname of a version of Andriod?

A. cupcake

B. Gingerbread

C. Honeycomb

D. Muffin

Ans: D

16) Android doesn't make any assumptions about a device's screen size, resolution, or chipset.:

A. True

B. False

Ans: A

17) Why are there so few users left with versions 1.0 and 1.1?

A. The first phones were released with version 1.5

B. 1.0 and 1.1 had security holes that forced carriers to recall phones using them

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C. 1.0 and 1.1 are just number designations for the version Apple's iPhone is running

D. Everyone with 1.0 and 1.1 were upgraded to 1.5 over the air automatically

Ans: D

18) Which Android version had the greatest share of the market as of January 2011?

A. 1.1

B. 1.5

C. 2.3

D. 3.4

Ans: B

19) Which piece of code used in Android is not open source?

A. Keypad driver

B. WiFi? driver

C. Audio driver

D. Power management

Ans: B

20) Android is built upon the Java Micro Edition (J2ME) version of Java.

A. True

B. False

Ans: B

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21) Which among these are NOT a part of Android's native libraries?

A. Webkit

B. Dalvik

C. OpenGL

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D. SQLite

Ans: B

22) Android is based on Linux for the following reason.

A. Security

B. Portability

C. Networking

D. All of these

Ans: D

23) What operating system is used as the base of the Android stack?

A. Linux

B. Windows

C. Java

D. XML

Ans: A

24) What year was development on the Dalvik virtual machine started?

A. 2003

B. 2005

C. 2007

D. 2006

Ans: B

25) What is a key difference with the distribution of apps for Android based devices than other mobile device platform applications?

A. Applications are distributed by Apple App Store only

B. Applications are distributed by multiple vendors with different policies on applications.

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C. Applications are distributed by multiple vendors with the exact same policies on applications.

D. Applications are distributed by the Android Market only.

Ans: B

26) When developing for the Android OS, Java byte code is compiled into what?

A. Java source code

B. Dalvik application code

C. Dalvik byte code

D. C source code

Ans: C

27) What does the .apk extension stand for?

A. Application Package

B. Application Program Kit

C. Android Proprietary Kit

D. Android Package

Ans: A

28) When you distribute your application commercially,you'll want to sign it with your own key.

A. True

B. False

Ans: A

29) How does Google check for malicious software in the Android Market?

A. Every new app is scanned by a virus scanner

B. Users report malicious software to Google

C. Google employees verify each new app

D. A seperate company monitors the Android Market for Google

Ans: B

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30) Which of these are not one of the three main components of the APK?

A. Dalvik Executable

B. Resources

C. Native Libraries

D. Webkit

Ans: D

31) What is the name of the program that converts Java byte code into Dalvik byte code?

A. Android Interpretive Compiler (AIC)

B. Dalvik Converter

C. Dex compiler

D. Mobile Interpretive Compiler (MIC)

Ans: C

32) What was the main reason for replacing the Java VM with the Dalvik VM when the project began?

A. There was not enough memory capability

B. Java virtual machine was not free

C. Java VM was too complicated to configure

D. Java VM ran too slow

Ans: B

33) Android Applications must be signed.

A. After they are installed

B. Before they are installed

C. Never

D. Within two weeks of installation

Ans: B

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34) Which of the following are not a component of an APK file?

A. Resources

B. All of these are components of the APK

C. Native Libraries

D. Dalvik executable

Ans: B

35) The AWT and Swing libraries have been removed from the Android library set.

A. True

B. False

Ans: A

36) The R.java file is where you edit the resources for your project.

A. True

B. False

Ans: B

37) What is contained within the manifest xml file?

A. The permissions the app requires

B. The list of strings used in the app

C. The source code

D. All other choices

Ans: A

38) What is contained within the Layout xml file?

A. Orientations and layouts that specify what the display looks like.

B. The permissions required by the app.

C. The strings used in the app.

D. The code which is compiled to run the app.

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9) The emulated device for android.

A. Runs the same code base as the actual device, all the way down to the machine layer.

B. Is more of a simulator, and acts as a virtual machine for the Android device.

C. Runs the same code base as the actual device, however at a higher level

D. An imaginary machine built on the hopes and dreams of baby elephants.

Ans: A

40) Your Java source code is what is directly run on the Android device.

A. True

B. False

Ans: B

41) The Emulator is identical to running a real phone EXCEPT when emulating/simulating what?

A. Telephony

B. Applications

C. Sensors

D. The emulator can emulate/simulate all aspects of a smart phone

Ans: C

42) How is a simulator different from an emulator?

A. Emulators are only used to play old SNES games, simulators are used for software development

B. The emulator is shipped with the Android SDK and third party simulators are not

C. The emulator can virtualize sensors and other hardware features, while the simulator cannot

D. The emulator imitates the machine executing the binary code, rather than simulating the behavior of the code at a higher level

Ans: D

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43) The R file is a(an) generated file

A. Automatically

B. Manually

C. Emulated

D. None of the above

Ans: A

44) An activity can be thought of as corresponding to what?

A. A Java project

B. A Java class

C. A method call

D. An object field

Ans: B

45) To create an emulator, you need an AVD. What does it stand for?

A. Android Virtual Display

B. Android Virtual Device

C. Active Virtual Device

D. Application Virtual Display

Ans: B

46) The Android SDK ships with an emulator.

A. True

B. False

Ans: A

47) The _____ file specifies the layout of your screen.

A. Layout file

B. Manifest file

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C. Strings XML

D. R file

Ans: A

48) The manifest explains what the application consists of and glues everything together.

A. True

B. False

Ans: A

49) The Android Software Development Kit (SDK) is all you need to develop applications for Android.

A. True

B. False

Ans: A

50) What is the driving force behind an Android application and that ultimately gets converted into a Dalvik executable?

A. Java source code.

B. R-file.

C. the emulator.

D. the SDK

Ans: A

51) While developing Android applications, developers can test their apps on.

A. Emulator included in Android SDK

B. Physical Android phone

C. Third-party Emulators (Youwave, etc.)

D. All three options will work

Ans: D

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52) What file is responsible for glueing everthing together , explaining what the applicatin consists of, what its main building blocks are, ext...?

A. Layout file

B. Strings XML

C. R file

D. Manifest file

Ans: D

53) The XML file that contains all the text that your application uses.

A. stack.xml

B. text.xml

C. strings.xml

D. string.java

Ans: C

54) Which of the following is the most "resource hungry" part of dealing with Activities on Android.

A. Closing an app

B. Suspending an app

C. Opening a new app

D. Restoring the most recent app

Ans: C

55) What runs in the background and doesn't have any UI components?

A. Intents

B. Content Providers

C. Services

D. Applications

Ans: C

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56) What is an Activity?

A. A single screen the user sees on the device at one time

B. A message sent among the major building blocks

C. A component that runs in the background without any interface.

D. Context referring to the application environment.

Ans: A

57) When an activity doesn't exist in memory it is in.

A. Starting state

B. Running state

C. Loading state

D. Inexistent state.

Ans: A

58) Which of the following is NOT a state in the lifecycle of a service?

A. Starting

B. Running

C. Destroyed

D. Paused

Ans: D

59) There is no guarantee that an activity will be stopped prior to being destroyed.

A. True

B. False

Ans: A

60) Intents

A. are messages that are sent among major building blocks

B. trigger activities to being, services to start or stop, or broadcast

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C. are asynchronous

D. all of these

Ans: D

61) In an explicit intent, the sender specifies the type of receiver.

A. True

B. False

Ans: B

62) an implicit intent is the sender specifies the type of receiver?

A. True

B. False

Ans: A

63) When the activity is not in focus, but still visible on the screen it is in?

A. running state

B. Paused state

C. stopped state

D. destroyed state

Ans: B

64) An activity in a stopped state is doing nothing.

A. True

B. False

Ans: B

65) Application contexts are independent of the activity life cycle.

A. True

B. False

Ans: A

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66) Services have any user interface components

A. True

B. False

Ans: B

67) Broadcast receivers are Android's implementation of a system-wide publish/subscribe mechanism, or more precisely, what design pattern?

A. Observer

B. Facade

C. Mediator

D. Command

Ans: A

68) There can be only one running activity at a given time.

A. True

B. False

Ans: A

69) YAMBA stands for Yet Another Mobile Banking App.

A. True

B. False

Ans: B

70) Lists and adapters are more organizational aids than user interface elements in Android.

A. True

B. False

Ans: A

71) What built-in database is Android shipped with?

A. SQLite

B. Apache

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C. MySQL

D. Oracle

Ans: A

72) Creating a UI (User Interface) in Android requires careful use of...

A. Java and SQL

B. XML and Java

C. XML and C++

D. Dreamweaver

Ans: B

73) A good example app should demonstrate most of the aspects of the application framework that are unique to Android.

A. True

B. False

Ans: A

74) What will services be used for in the Yamba project?

A. Recompile the source code

B. It will update tweets periodically in the background

C. The services will pause the app

D. Configures the user interface

Ans: B

75) Which answer is not part of the design philosophy talked about in chapter five?

A. Always whole and complete

B. Small increments

C. Lagre increments

D. Refactoring code

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Ans: C

76) App Widgets are can be place on the home screen by the user to check for updates are available?

A. True

B. False

Ans: A

77) The android OS comes with many useful system services, which include processes you can easily ask for things such as your..

A. All of these and more.

B. Location

C. Sensor Readings

D. WiFi? Hot Spots

Ans: A

78) What does the Gargenta mean in his Design Philosophy when he says that the project will, "Always be whole and complete"?

A. He means that when we finish the entire project we will have a working application, even though there will be points along the way when we will stop and the application will not run.

B. He means that the program must always be able to compile.

C. He means that we will work on the program by adding self contained chunks to it so that at every stopping point the application runs as though it were a whole and complete application. Each additional chunk simply adds a new functionality to the application.

D. None of the above

Ans: C

79) An Android application is a loose collection of content providers, activities, broadcast receivers, and services.

A. True

B. False

Ans: A

80) Which of the following is NOT an activity we will be creating for the YAMBA project?

A. Preferences Activity

B. Update Activity

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C. Timeline Activity

D. Status Activity

Ans: B

81) The timeline receiver will receive messages from the Android system.

A. True

B. False

Ans: B

82) Status data will be exposed to the rest of the Android system via:

A. Intents

B. A content provider

C. Network receivers

D. Altering permissions

Ans: B

83) If the UI begins to behave sluggishly or crash while making network calls, this is likely due to...

A. Network latency

B. Hardware malfunctions

C. Virus on the Server

D. Activity manager contains too much.

Ans: A

84) How does Gargenta approach the problem of the app acting sluggishly due to network latency?

A. Starting over

B. Switching API levels

C. Refactoring code

D. Multithreading

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Redhat

17. Adb Stands For
Android Debug Bridge.
Android Drive Bridge.
Android Delete Bridge
Android Destroy Bridge.

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18. What is Manifest.xml in android?
It has information about layout in an application
It has all the information about an application
It has the information about activities in an application
None of the above

19. In which technique, we can refresh the dynamic content in android?
Ajax
Java
Android
None of These

20. What is an interface in android?
Interface is a class.
Interface acts as a bridge between class and the outside world.
Interface is a layout file
All of the above





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MCA DEPARTMENT 2017 – 2018

MARK LIST OF STUDENTS

3rd – 14th July 2017

NO.	NAME	MARK
1	AISWARYA C	18
2	AISWARYA M A	19
3	AISWARYA RAJENDRAN V	17
4	AMUDA K	15
5	ATHIRA K	16
6	HARITHA K S	14
7	JIJIN P	15
8	KARISHMA K	16
9	M SUKANYA	17
10	MEERA N	18
11	MEHAZA NAJEEB	19
12	MOHAMED MUSTHAFA P	20
13	MOUNIKA V	19
14	RESHMA M	18
15	RESHMI R	17
16	SHIVIN WILSON N	17
17	SHYAM M S	18
18	SILNA K WILSON	19
19	SIRIL M R	15
20	SREELAKSHMI C	14
21	SREENATH M P	15
22	SRUTHY M	16
23	STEPHY SEBASTIAN	17
24	SUMILA S	18
25	THANSIHA NASRIN A	15
26	VINDHUJA V	16
27	VINI C V	17
28	AISWARYA K R	18
29	AJESH A J	18
30	ASHA JOHNY	19
31	ASHITHA B Y	17

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33	BINDHU BALACHANDRAN	15
34	DEVI KRISHNA P R	16
35	DIPIN K S	18
36	DIVYA K	14
37	FAYIS K T	16
38	JAYASREE P	15
39	JIBIN VARGHESE	17
40	MOHAMMED RAOFAL	18
41	NAMITHA P S	19
42	NANCY KOCHOUSEPH	17
43	NEELIMA M P	18
44	NIDHILA K	17
45	PRESSY MATHEW	17
46	RAIBY M BENNY	18
47	SHAMILA M I	18
48	SHOBIKA KAILAS S	20
49	SNEHA MOHAN P	20
50	SREEJITH K	19
51	SUBAIR A S	18
52	SUMI M	14

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DEPARTMENT OF MCA

Add-on Program 3rd - 14th July 2017

This is to certify that Mr./Mrs. SHYAM M S of NEHRU COLLEGE OF ENGINEERING & RESEARCH CENTRE college has actively participated in a value added program " Android and Java Programming ". Upon completion of theoretical and practical modules and successfully completed the assessment test this document of participation is presented.

Course Co-ordinator

HOD-MCA Dept.

Nehru College of Engineering and Research Centre
Nila Gardens, Pampady, Thiruvilwamala,
Thrissur 680588.

Department of MCA Presents

Value Added Program
Android & Java Programming

Dates : 3rd - 14th July 2017

Resource Person : Mr.Aneesh A

Project Manager, Cyber Tech

Venue : Kapila, NCERC

For enquiries contact Coordinator:

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